

BEFORE THE PUBLIC UTILITIES COMMISSION OF
THE STATE OF CALIFORNIA



FILED
10-14-16
04:59 PM

Application of Pacific Gas and Electric
Company in its 2015 Nuclear Decommissioning
Cost Triennial Proceeding (U39E)

Application 16-03-006
(Filed March 1, 2016)

OPENING BRIEF OF THE UTILITY REFORM NETWORK



Matthew Freedman
Staff Attorney
The Utility Reform Network
785 Market Street, 14th floor
San Francisco, CA 94103
415-929-8876 x304
matthew@turn.org
October 14, 2016

TABLE OF CONTENTS

I.	SUMMARY OF RECOMMENDATIONS.....	2
II.	THE COMMISSION MUST BALANCE THE INTERESTS OF CURRENT AND FUTURE RATEPAYERS.....	5
III.	HUMBOLDT BAY NUCLEAR PLANT.....	7
	A. The Commission should consider the decommissioning cost impact of PG&E's poor stewardship in preparation for and during delayed decommissioning (SAFSTOR) at Humboldt Bay	7
	B. Future reporting should include a clear accounting for additional costs beyond those required by the Nuclear Regulatory Commission	10
IV.	DIABLO CANYON DECOMMISSIONING COST ESTIMATE.....	11
	A. Unprecedented increases in the Diablo Canyon cost estimate justify greater Commission scrutiny	13
	B. There is no basis for comparing decommissioning costs or experiences at Humboldt Bay to Diablo Canyon.....	15
	C. TURN comparison of Diablo Canyon cost estimate with other comparable facilities.....	17
	D. PG&E has the burden of proof to demonstrate the reasonableness of cost estimates, especially when a large increase is proposed for a specific category of costs relative to a prior estimate.....	23
	1. Security costs	25
	2. Utility and DOC costs.....	28
	3. Large component removal.....	31
	4. Removal of all onsite concrete as contaminated via "Rip and Ship"	36
	5. Assumption that all onsite construction debris is sent for out-of-state disposal.....	38
V.	THE COMMISSION SHOULD DIRECT PG&E TO COMMIT TO PROMPT DECOMMISSIONING AT DIABLO CANYON.....	44
VI.	SPENT NUCLEAR FUEL COOLING PERIODS.....	45

VII.	SPENT NUCLEAR FUEL MANAGEMENT COSTS	49
A.	The US Government is liable for increased costs associated with the delay in spent fuel pickup	51
B.	PG&E's proposed rate treatment for damage awards would guarantee significant intergenerational inequities	56
C.	TURN's Proposals for Treatment of Future Damage awards	58
D.	TURN's proposals do not violate state law	60
E.	Additional recommendations to improve reporting and increase the quality of information available to the Commission in future proceedings	62
VIII.	RECOMMENDATIONS FOR IDENTIFYING AND MINIMIZING SITE CONTAMINATION ISSUES.....	64
IX.	RECOMMENDED IMPROVEMENTS FOR THE FORMAT AND PRESENTATION OF DECOMMISSIONING COST ESTIMATES.....	66
X.	CONCLUSION.....	68

TABLE OF AUTHORITIES

Executive Orders

Governor Executive Order D-62-02.....	38, 41
---------------------------------------	--------

CPUC Decisions

DECISION 95-12-055	5
DECISION 00-02-046	6
DECISION 10-07-047	10, 50
DECISION 11-07-003	65, 66
DECISION 14-12-082	
.....1, 6-7, 10-12, 15, 22, 24-26, 30, 36-37, 45-46, 49, 52, 54, 57, 60, 63, 66-68	
DECISION 16-04-019	57

United States Code

31 USC §1304	54
42 USC §10101 <i>et seq.</i>	51

California Public Utilities Code

§8322	6, 61
§8325	6, 61

Federal Court Decisions

<i>Southern California Edison v. US</i> , 93 Fed Cl. 337 (2010)	52
---	----

OPENING BRIEF OF THE UTILITY REFORM NETWORK

Pursuant to Rule 13.11 of the Rules of Practice and Procedure, The Utility Reform Network (TURN) submits this opening brief on the decommissioning cost estimates and revenue requirement assumptions for Diablo Canyon and Humboldt Bay Nuclear Power Plant. As an active and longtime participant in the Nuclear Decommissioning Cost Triennial Proceeding (NDCTP), TURN urges the Commission to take decisive action in this case with respect to the excessive cost estimate proposed for Diablo Canyon.

The Commission has an obligation to apply significant scrutiny to the revised estimate, to ensure that rates charged to customers are reasonable, and to take appropriate measures to balance the interests of current and future customers. At Diablo Canyon, Pacific Gas & Electric (PG&E) proposes almost \$1.5 billion in adjustments to the total Decommissioning Cost Estimate (DCE) that represent a 65% increase when compared to the estimate adopted in 2012 and a 107% increase compared to 2009 adopted estimate.¹

These increases, which dwarf the general rate of inflation during this period, represent the largest increases ever sought by a California utility.² In the 2012 NDCTP, Commission adopted a number of TURN's recommended adjustments and rejected \$498 million out of the \$958 million increase proposed by PG&E.³ TURN urges the Commission to take a similarly skeptical view of many of PG&E's assumptions in the current NDCTP.

¹ The total decommissioning cost estimate is composed of the costs to accomplish the three major decommissioning objectives: License Termination, Spent Fuel Management and Site Restoration. Ex. 33, Direct Testimony of Bruce Lacy, page 3.

² For comparison, the general rate of inflation as measured by the Consumer Price Index for the period 2011 to 2014 is 5.2% and for the period 2008 to 2014 is 9.5%. www.bls.gov/data/inflation_calculator.htm

³ D.14-12-082, Conclusion of Law 25.

I. SUMMARY OF RECOMMENDATIONS

TURN offers the following recommendations in this proceeding:

- The Commission conduct a more comprehensive assessment in the next NDCTP regarding the extent to which PG&E's own actions over time are to blame for excessive decommissioning expenditures at the Humboldt Bay Power Plant (HBPP).
- PG&E should be required to provide future reporting on HBPP progress that allocates total decommissioning costs into the three objectives of License Termination, Spent Fuel Management and Site Restoration.
- The Commission should find that PG&E has not satisfied its burden of proof to justify a \$344 million increase (or a doubling) in total security costs at Diablo Canyon.
- The Commission should find that PG&E has not satisfied its burden of proof to justify a \$311 million increase in Utility and DOC staff costs at Diablo Canyon.
- The Commission should decline to approve a \$492 million increase in large component removal costs based on an inadequate showing that higher staffing levels and a longer timeline are justified.⁴

⁴ Approximately \$298 million of this increase also appears as an increase in Utility and DOC staff costs. The effect of adopting TURN's recommendations for these two categories would be a \$505 million total adjustment to the cost estimate rather than the \$803 million reduction that would occur if these two figures were simply added together.

- The Commission should reject PG&E's \$312 million cost increase driven by the assumption that 100% of clean construction debris must be sent for disposal to an out-of-state landfill due to a 2002 Executive Order.
- The Commission should establish a presumption in favor of prompt decommissioning at Diablo Canyon. In the next NDCTP, PG&E should either commit to this approach or provide a detailed study explaining how delayed decommissioning would not result in the cost increases and surprises experienced at HBPP.
- The Commission should decline to approve PG&E's assumption that spent fuel cannot be transferred from wet storage to the onsite Independent Spent Fuel Storage Installation for at least 10 years after plant shutdown. TURN recommends the use of a 7-year timeline that would reduce the cost estimate by \$197 million. Alternatively, the Commission could adopt a different duration of less than 10 years to incorporate recent commitments made by PG&E relating to the shutdown of Diablo Canyon and protect ratepayers from excessive contributions to the decommissioning trust funds.
- The Commission should adjust any ratepayer revenue requirements sought in 2017 to include a portion of incremental spent fuel management costs that will be reimbursed by the federal government. TURN recommends an adjustment of between 5-50% of such costs.
- The Commission should direct PG&E to survey the rate treatment provided by other state utility commissions for spent fuel management costs that will be reimbursed by the federal government and submit a report in the next NDCTP. Alternatively, the Commission could authorize

the creation of an independent panel, similar to the one authorized in D.10-07-047, to perform this work.

- The Commission should direct PG&E to provide a report, in the next NDCTP, explaining all issues relating to limitations on removing any excess funding from the nuclear decommissioning trusts prior to the termination of a site license.
- The Commission should direct PG&E to continue to report, in future NDCTPs, on collection of spent fuel management damages from the federal government and provide updates relating to the status of settlements and litigation claims across the nuclear industry.
- PG&E should develop and submit a plan to aggressively characterize site contamination prior to shutdown and make efforts to reduce any onsite contamination during remaining operations.
- The Commission should establish a clear baseline for costs at Diablo Canyon prior to the commencement of active decommissioning. In the event that undiscovered contamination, or failures in site stewardship, unnecessarily drive up the costs of decommissioning, PG&E shareholders should be at risk for costs that should have been avoidable.
- In future NDCTPs, the Commission should require each utility to provide a comparison between different California nuclear units in the common summary format in all future applications where the cost estimates are updated. At a minimum, the comparison should include Diablo Canyon, HBPP and SONGS.

- The Commission should reiterate and enforce the previously adopted recommendation that each future cost estimate include comparison between the current DCE and the estimates from the two previous NDCTPs.

These recommendations are discussed in detail in the following sections of TURN's opening brief.

II. THE COMMISSION MUST BALANCE THE INTERESTS OF CURRENT AND FUTURE RATEPAYERS

In considering the reasonableness of decommissioning cost estimates and the associated revenue requirements, the Commission has an obligation to balance the interests of current and future ratepayers. While PG&E requests approval for an extremely ambitious Diablo Canyon cost estimate in order to ensure abundant long-term surpluses in the trust funds, TURN offers a more balanced perspective in the hope of minimizing either overcollections or undercollections from current ratepayers.

In prior cases addressing the adequacy of funding for nuclear decommissioning, the Commission has recognized the need to protect current ratepayers from excessive contributions that would be redistributed to future customers. In D.95-12-055, the Commission explained that

Our goal is to have funds on hand that appear reasonably adequate. Moreover, in our efforts to protect future ratepayers from costs incurred by today's ratepayers we do not wish to impose costs on today's ratepayers which, if funding exceeds future costs, would represent a windfall to future ratepayers.⁵

⁵ D.95-12-055, 63 CPUC2d 570, 612.

In D.00-02-046, the Commission reiterated this principle and explained that, under Cal. Pub. Util. Code §8322(f),

We are charged with providing assurance that required decommissioning funds are fully available when needed, but the assurance to be provided is not absolute. It must be "acceptable," i.e., reasonable. At the same time, we must seek to minimize ratepayer funding responsibility, and allocate that responsibility equitably over time consistent with Section 8325.⁶

In that decision, the Commission further clarified the symmetrical nature of intergenerational equity which, rather than justifying consistently higher estimates of future costs and raising current rates, supports a more balanced outcome that protects both current and future ratepayers:

Taking a conservative approach does not mean that every single element of the forecast of funding needs should be slanted in favor of greater current ratepayer contributions to the decommissioning trusts. As the Commission clearly indicated in the last GRC, it is possible to be overly conservative in making current forecasting assumptions, and to thereby create the risk of an unjustified windfall for future ratepayers at the expense of today's ratepayers. As a matter of established policy, avoiding that outcome is part of the mix of considerations we take into account. Thus, the argument repeatedly put forth by PG&E, which in general form says that "Assumption A is superior to Assumption B because Assumption A is more conservative," fails in the absence of evidence that Assumption B is not reasonably conservative.⁷

In the 2012 NDCTP, the Commission reiterated this principle in stating "we also acknowledge TURN's reminder of our oft-stated view that adoption of 'conservative' assumptions does not mean consistently higher estimates of future costs."⁸ That Decision also points out that:

The Commission is charged with ensuring sufficient (just not too much) funding to complete decommissioning, given the numerous uncertainties

⁶ D.00-02-046, 2000 Cal. PUC LEXIS 239, 78.

⁷ D.00-02-046, 2000 Cal. PUC LEXIS 239, 81-82.

⁸ D.14-12-082, page 14.

ahead. When it comes to nuclear decommissioning, both overcollection and undercollection are possible due to facts currently unknown.⁹

As explained in these decisions, the Commission should avoid falling into the trap of consistently erring on the side of approving higher cost estimates if the net impact would be a transfer of funds from current ratepayers to a future generation that would receive any remaining surplus balances when the site licenses are finally terminated in several decades. TURN's recommendations are intended to assist the Commission in achieving an appropriate intergenerational balance.

III. HUMBOLDT BAY NUCLEAR PLANT

TURN reviewed the updated decommissioning cost estimate for Humboldt Bay and the costs incurred to date to conduct decommissioning. TURN does not oppose Commission approval of either the revised DCE or the expenditures proposed for reasonableness review. However, TURN believes the Commission should adopt two specific directives relating to HBPP for consideration in the next NDCTP.

A. The Commission should consider the decommissioning cost impact of PG&E's poor stewardship in preparation for and during delayed decommissioning (SAFSTOR) at Humboldt Bay

TURN witness Lacy provided an assessment of the 33-year history of delayed decommissioning (SAFSTOR) at HBPP. In this assessment, he identified several examples of problems that drove higher decommissioning costs at the site.¹⁰ A number of these problems are attributable to PG&E's poor management of the

⁹ D.14-12-082, page 36.

¹⁰ Ex. 33, pages 8-14.

site, and the decommissioning process, between 1976 and 2009. Only now are the consequences of PG&E's historical management lapses becoming apparent. Because some of the increases in decommissioning costs should have been avoidable, TURN recommends that the Commission conduct a more comprehensive assessment in the next NDCTP regarding the extent to which PG&E's own actions in preparation for, and during, SAFSTOR unnecessarily increased the cost of decommissioning at HBPP.

This proposal would provide two potential ratepayer benefits. First, the Commission could consider whether to disallow any excess HBPP decommissioning costs on the basis that they were caused by PG&E's own actions over time. Second, the Commission could use this assessment to determine both the appropriate timing of active decommissioning at Diablo Canyon and the development of any standards applicable to PG&E's management of that process to ensure least-cost outcomes.

TURN witness Lacy explained that "the preparation of HBPP for SAFSTOR appears to have left many surprises for the future."¹¹ An example of these surprises included the belated discovery that PG&E had failed to withdraw the control blade drives in 1976, and never documented this fact, leading to a change in its approach to vessel segmentation and additional costs as part of the current effort.¹² In another example, Mr. Lacy pointed to the fact that demineralizing resin left in place when the plant originally ceased operation (in 1976) complicated efforts to flush out and remove various components as part of the current effort.¹³ PG&E did not dispute Mr. Lacy's findings and offered practically no rebuttal testimony on this point.

¹¹ Ex. 33, page 10.

¹² Ex. 33, page 10.

¹³ Ex. 33, page 10.

Mr. Lacy further highlighted examples of poor stewardship during SAFSTOR such as the condition of water in the suppression pool, already radiologically contaminated due to fuel failures, that became contaminated with chemicals and site discharges that complicated cleanup as part of the current effort.¹⁴ Mr. Lacy also identified PG&E's initial failure to adequately document key plant information and site contamination.¹⁵ This failure led to additional costs and schedule delays during the current decommissioning effort.

The poor stewardship of HBPP over a period of three decades prior to active decommissioning raises serious questions about the extent to which substantial additional costs were avoidable but for PG&E's poor oversight and management over several decades. Because the consequences of PG&E's poor stewardship are only becoming apparent now, there was no meaningful opportunity for TURN or any other intervenor to identify this issue in prior proceedings. The full extent of the increased cost is only becoming apparent as active decommissioning reveals problems and knowledge gaps.

Mr. Lacy offered a simple estimate of incremental costs up to \$440 million that could be attributable to poor management.¹⁶ While TURN is not asking the Commission to adopt a figure in this NDCTP attributable to PG&E's poor stewardship, these failures should be recognized and subject to further scrutiny in the next NDCTP once the final costs of active decommissioning are more certain.

¹⁴ Ex. 33, page 10.

¹⁵ Ex. 33, page 11.

¹⁶ Ex. 33, page 5, footnote 2.

B. Future reporting should include a clear accounting for additional costs beyond those required by the Nuclear Regulatory Commission

Although the decommissioning estimate for Diablo Canyon allocates costs amongst the three objectives of License Termination, Spent Fuel Management and Site Restoration, the HBPP estimate does not provide a similar breakdown. In both D.10-07-047 and D.14-12-082, the Commission ordered PG&E (and the other utilities) to report “the pro rata share of funds” allocated to License Termination.¹⁷ PG&E did not provide this breakdown between the three decommissioning objectives for HBPP.

In prepared testimony, TURN witness Lacy urged the Commission to provide future reporting on HBPP progress that allocates total costs into these three objectives to “improve understanding the relative role of NRC, Spent Fuel Management (DOE), and state and local requirements in impacting decommissioning costs.”¹⁸ PG&E’s rebuttal testimony did not respond to Mr. Lacy’s recommendation and no cross-examination questions were asked on this subject during evidentiary hearings.

TURN urges the Commission to apply this requirement to all future reporting on, and cost estimating for, HBPP. Providing a clear breakdown of costs by decommissioning objective will help to highlight the significant role and impact of state and local requirements that go beyond NRC standards. This information should assist with assessing the reasonableness of decommissioning costs at both HBPP and other California nuclear facilities.

¹⁷ D.10-07-047, Ordering Paragraph #9; D.14-12-082, Ordering Paragraph #10.

¹⁸ Ex. 33, page 14.

IV. DIABLO CANYON DECOMMISSIONING COST ESTIMATE

PG&E seeks approval of a decommissioning cost estimate of \$3.779 billion for Diablo Canyon. When compared to the \$2.286 billion approved in the 2012 NDCTP, the 2016 revision represents a 65% increase on top of a 25% increase between 2009 and 2012.¹⁹ Taken together, PG&E asks the Commission to approve a more than doubling of the cost estimate (an increase of approximately \$1.95 billion) between 2009 and 2016. The decommissioning cost increases requested in this case are the largest ever proposed by a California utility.

These massive and unprecedented increases appear to be driven by PG&E's fear that the experience at Humboldt Bay will translate into higher-than-expected expenditures at Diablo Canyon and places no regard on the near-term rate impacts for current customers. The changed assumptions incorporated into the TLG model at PG&E's insistence were designed to result in huge increases in the overall cost estimate. As explained by TLG witness Seymore, who routinely prepares cost estimates for utilities across the country, PG&E "was more interested" in providing input than other utilities and "had definite feedback they wanted to get into the current model we are doing for Diablo Canyon."²⁰

This effort to incorporate assumptions that drive big increases to the cost estimate is consistent with PG&E's behavior in the 2012 NDCTP. In that case, TURN challenged a large number of changed assumptions proposed by PG&E that were designed to increase the overall cost estimate. The Commission agreed with many of TURN's critiques and rejected \$498 million of PG&E's proposed increases.²¹ In making these adjustments, the Commission stated "we are concerned that PG&E made only a nominal attempt to explain or justify changes

¹⁹ Ex. 33, page 17.

²⁰ RT Vol. 1, page 15.

²¹ D.14-12-082, pages 4-5.

in these and other assumptions which result in nearly one billion extra dollars for ratepayers to pay over time to decommission DCPD.”²²

Many of the extreme assumptions proposed by PG&E are best understood as an attempt to prioritize shareholder protection over fairness to ratepayers. When asked about the rationale for making a “conservative” assumption, PG&E witness Sharp explained that “in my mind it minimizes company risk.”²³ This inadvertent admission highlights the basic problem with PG&E’s approach to preparing the decommissioning cost estimate. While PG&E seeks to “minimize” risk to “the company”, the Commission is charged with ensuring that the cost estimate is reasonable and balancing the impacts on different generations of ratepayers to achieve fairness.

A deeper dive into the cost increases contained in the 2016 study reveals serious problems with the basis for selecting new assumptions that drive a significant portion of the spike in overall costs. Although the high level drivers are identified in testimony, few details or supporting documents can be found in the testimony and workpapers. Moreover, PG&E makes a number of highly questionable and extreme assumptions designed to drive huge overall cost increases.

Rather than simply adopt these changed assumptions, TURN witness Lacy urged the Commission to apply “careful scrutiny” due to the “significant cost consequences” associated with each of the assumptions.²⁴ The Commission should not approve such a major increase in this NDCTP absent a more credible showing that the changed assumptions are reasonable and supported by substantial evidence, that the drivers of increases are transparent and fully

²² D.14-12-082, pages 104-105.

²³ RT Vol. 1, page 132.

²⁴ RT Vol. 2, page 223.

documented, and that the utility has conducted some form of analysis in an effort to select least-cost options that satisfy applicable regulatory standards.

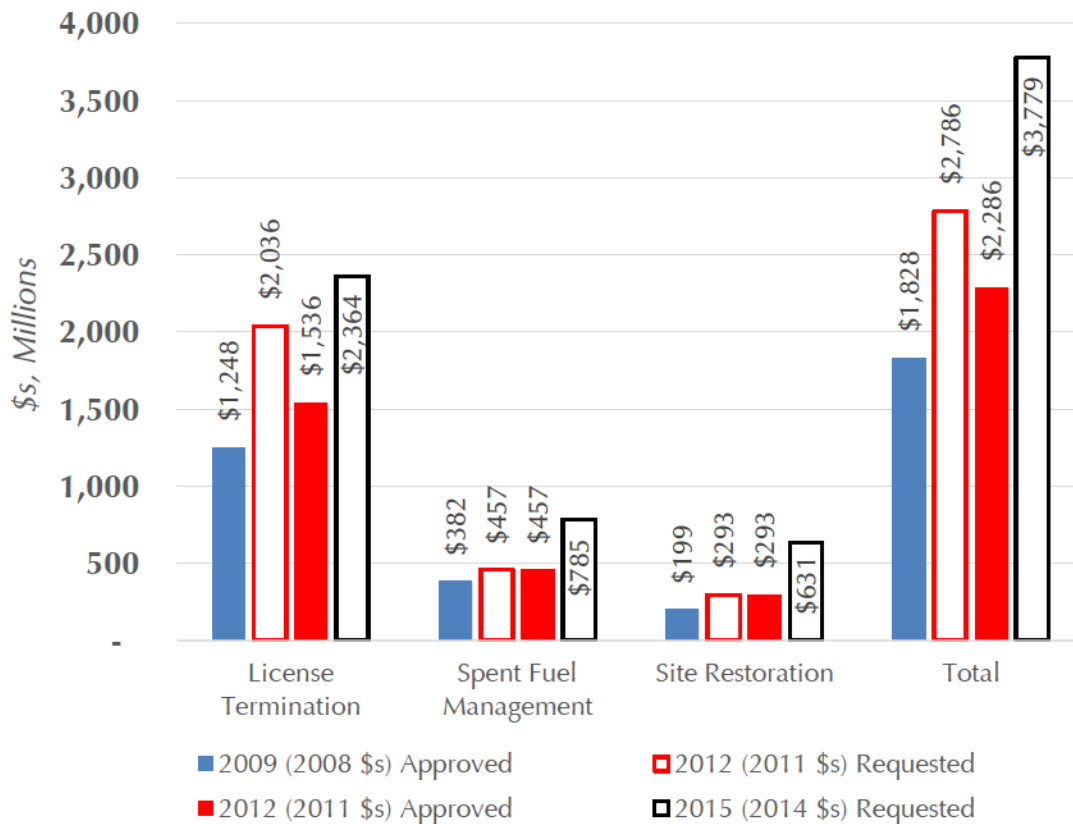
A. Unprecedented increases in the Diablo Canyon cost estimate justify greater Commission scrutiny

PG&E proposes significant increases to the cost estimate for all three major decommissioning objectives: License Termination, Spent Fuel Management, and Site Restoration. The increases for each objective are larger than any previously proposed for any nuclear plant in California. Specifically, PG&E proposes an \$828 million (or 53%) increase for License Termination, a \$328 million (or 72%) increase for Spent Fuel Management, and a \$338 million (or 116%) increase for site restoration.²⁵ The chart below highlights the proposed increases for each objective, and the entire estimate, along with a comparison of historically approved levels since 2009.²⁶

²⁵ Ex. 33, page 17.

²⁶ The original version of this chart appears in Ex. 33, page 17.

Diablo Canyon Cost Estimates 2009-2015



TURN described the relevance of these three decommissioning objectives in prepared testimony.²⁷ “License termination” refers to the aspects of dismantling the plant and addressing any remaining radiological hazards that are comprehensively regulated by the US Nuclear Regulatory Commission. “Spent Fuel Management” refers to activities involving the long-term interim storage of spent fuel at the site including the costs attributable to delays by the federal government to accept spent fuel. “Site Restoration” refers to activities not included in either of the two other objectives that are beyond the scope of the US

²⁷ Ex. 33, pages 3-4, 38-39.

NRC's authority. As a result, these activities are not subject to any particular federal standards or requirements but are instead governed by state and local requirements. TURN takes issue with a number of PG&E's proposed increases for each objective. These concerns are magnified due to the overall large increase sought for each of these objectives and are explained in the following sections.

The Commission should critically review each of the changes proposed by PG&E to assess their reasonableness. It is worth noting that TLG did not review or endorse the reasonableness of any inputs proposed by PG&E but did attempt to ensure that PG&E was aware of their impact on the total costs.²⁸ Consistent with the approach taken in the 2012 NDCTP, "the Commission must review the basis for changes and will look for evidence to support different assumptions."²⁹ TURN strongly urges the Commission to consider the extent to which "different assumptions" would support outcomes other than those sought by PG&E.

B. There is no basis for comparing decommissioning costs or experiences at Humboldt Bay to Diablo Canyon

There is little question that PG&E's efforts to increase the Diablo Canyon cost estimate are driven in large part by the decommissioning experience thus far at Humboldt Bay.³⁰ PG&E relies upon "lessons learned" at HBPP to support its claim that the revised Diablo Canyon estimate is reasonable.³¹ On a number of specific issues, PG&E points to the experience at HBPP as the basis for increasing cost inputs to the TLG model. Explicitly identified adjustments include security, staffing levels, utility and DOC staff, reactor vessel segmentation and removal,

²⁸ RT Vol. 1, page 16.

²⁹ D.14-12-082, page 96.

³⁰ RT Vol. 2, pages 234-5.

³¹ Ex. 4, page 3-1.

and license termination surveys.³² Some of these changes have significant impacts on the overall cost estimate.³³

TURN urges the Commission to carefully scrutinize claims that the experience at HBPP directly translates to Diablo Canyon. TURN witness Lacy explained during evidentiary hearings that the rapid escalation in the Diablo cost estimate is unprecedented and that efforts to justify these increases based on 'lessons learned' from HBPP may not be legitimate.³⁴ In prepared testimony, Mr. Lacy reviewed the history of HBPP and identified a number of significant differences that make it difficult to meaningfully compare the scope of work and expected costs for decommissioning at the two sites.³⁵

Unlike HBPP, which is an early prototype Boiling Water Reactor design, Diablo Canyon is a modern mature Pressurized Water reactor design.³⁶ Unlike HBPP, Diablo Canyon does not have a suppression pool and water from the reactor core does not transit through the turbine and condenser system.³⁷ Moreover, Diablo Canyon is above grade and in a dry environment while HBPP is below ground in saturated soil with a high water table.³⁸ The site footprint at Diablo Canyon is far less congested than HBPP and there are no companion fossil generating units both operating and undergoing active decommissioning.³⁹ Most importantly, Diablo Canyon has not experienced the repeated fuel failures and operational contamination events that plagued HBPP throughout its short life and resulted in

³² Ex. 4, page 3-6; Ex. 17, PG&E response to TURN DR8, Q2(e); Ex. 17, page 1 (item 3).

³³ For example, PG&E claims that a \$311 million increase in Utility and DOC staffing costs is justified based on the experience at HBPP. (Ex. 4, page 3-6)

³⁴ RT Vol. 2, page 236.

³⁵ Ex. 33, pages 15-16.

³⁶ Ex. 33, page 15.

³⁷ Ex. 33, page 15.

³⁸ Ex. 33, page 15.

³⁹ Ex. 33, page 15.

widespread alpha contamination.⁴⁰ By contrast to HBPP, PG&E reports no significant unexpected radioactive contamination of plant systems or the site that materially affects the cost estimate.⁴¹ Finally, poor stewardship at HBPP (discussed in Section III) drove a variety of increased costs and schedule delays that should be avoidable at Diablo Canyon.

These distinguishing factors should be given great weight as part of the Commission's evaluation of the Diablo Canyon cost estimate. As explained by Mr. Lacy, "the Diablo Canyon decommissioning can be expected to be distinctly different from the unique HBPP decommissioning experience and should be similar in most material ways with decommissioning of other similarly designed and operated commercial nuclear power plants."⁴² Put simply, Mr. Lacy urged the Commission to find that "Diablo Canyon is not another Humboldt Bay."⁴³

The Commission should be wary about allowing PG&E to justify significant cost increases at Diablo Canyon by simply pointing to its experience at HBPP. The differences between these two projects are so significant as to make comparisons extremely challenging.

C. TURN comparison of Diablo Canyon cost estimate with other comparable facilities

TURN's direct testimony offers a comparison of historical changes to cost estimates for both Diablo Canyon and similar plants across the United States.⁴⁴ As described during hearings, the purpose of this effort was "to compare Diablo Canyon, a 2-unit, four-loop Westinghouse plant at a fairly typical site, to other

⁴⁰ Ex. 33, page 16.

⁴¹ Ex. 33, page 17.

⁴² Ex. 33, page 15.

⁴³ RT Vol. 2, page 236.

⁴⁴ Ex. 33, pages 18-21.

plants around the country that are also similar in that nature.”⁴⁵ The comparison is based on publicly available studies performed by TLG (the same vendor used by PG&E) and represents a “geographically-diverse, utility-diverse, site-diverse set of characteristics”.⁴⁶ While PG&E may have provided more input to TLG’s estimating process, it needs to be understood that every plant owner provides specific site-specific inputs to TLG for use in developing their cost estimates. There is no basis for concluding that the comparison studies include materially less reasonable site analysis than are found in the Diablo Canyon study.⁴⁷

The comparison shows a growing divergence between the costs assumed for Diablo Canyon and the group of comparison facilities over the past decade. Although Diablo Canyon was at the “high end of the pack in 2004”, the current estimate proposed by PG&E is approximately double the industry consensus for License Termination and approximately four times the industry consensus for Site Restoration.⁴⁸ As a result, TURN found that “the Diablo Canyon Cost Study is a significant outlier from decommissioning cost studies for the U.S. population of similarly designed and operated commercial nuclear power plants.”⁴⁹ The following charts show the comparison of the estimated costs for License Termination and Site Restoration over the relevant time period:

⁴⁵ RT Vol. 2, page 205.

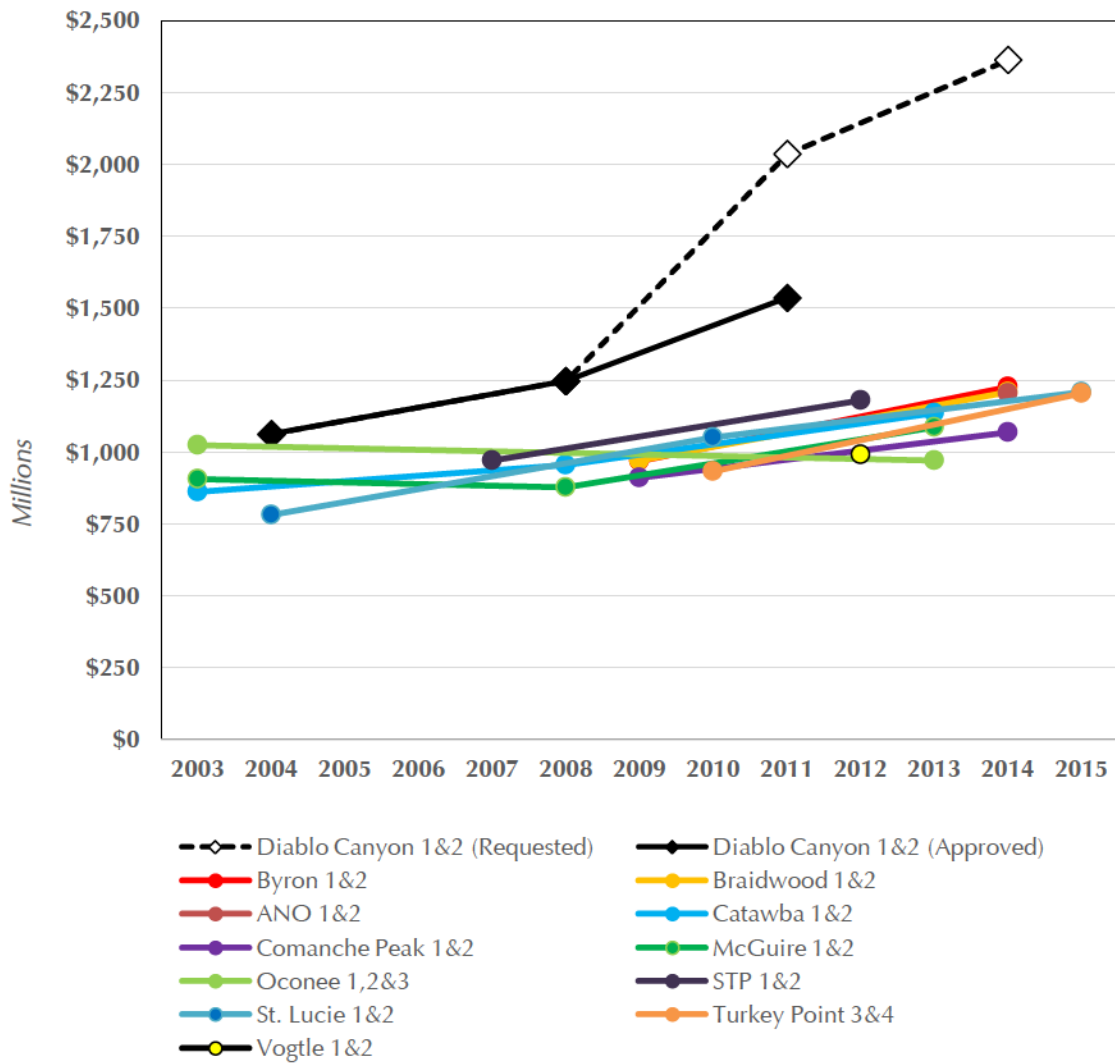
⁴⁶ RT Vol. 2, pages 206, 207-208.

⁴⁷ RT Vol. 2, page 252 (Mr. Lacy: “Everyone provides site-specific information based on - and in most cases, there are prior studies that are in some cases based on detailed site inventories. So I don't think we should leave anyone with the impression that these other studies are somehow or another kind of a generic, off-the-shelf-at-Walmart-type cost study. That would be incorrect.”)

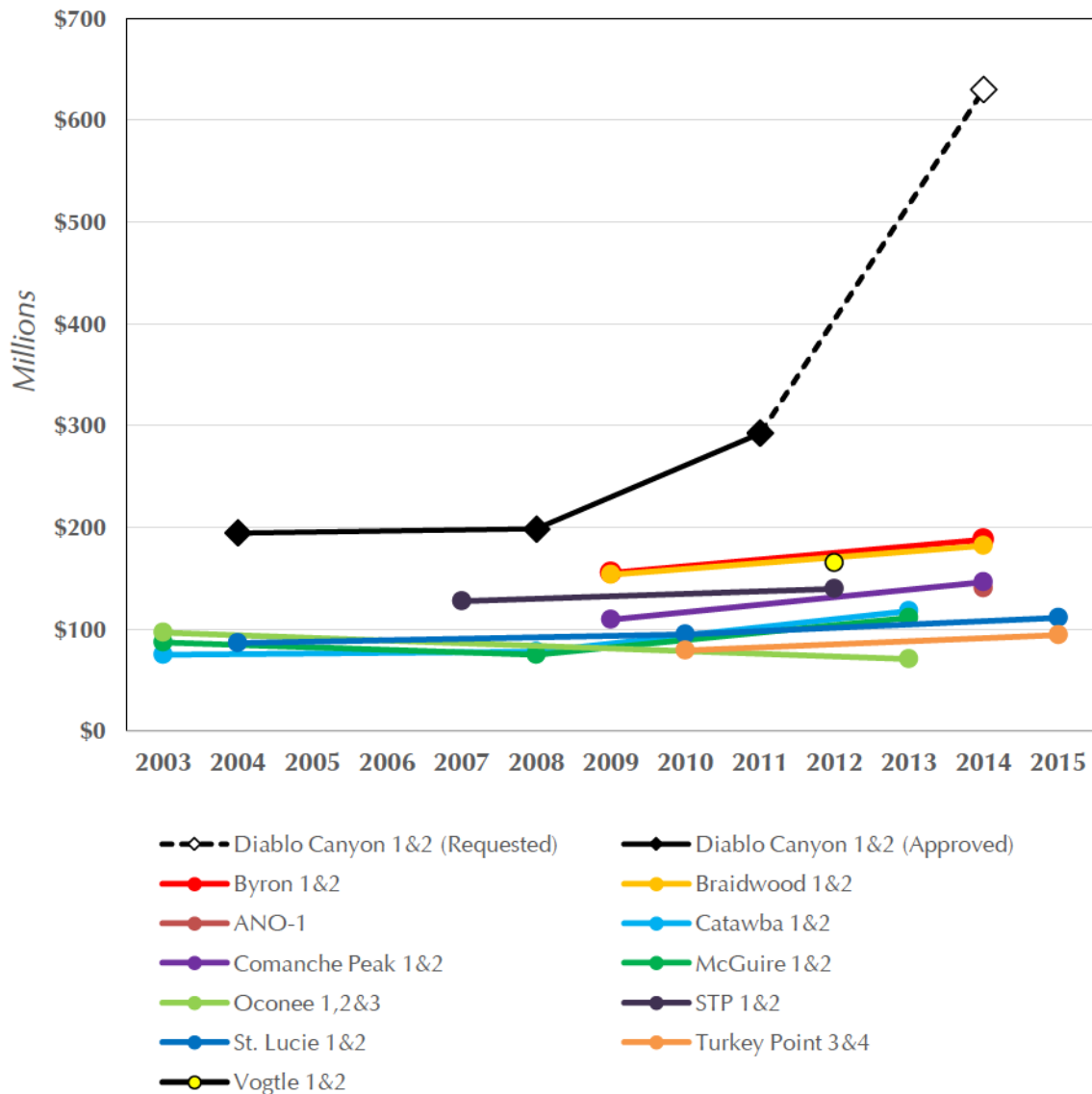
⁴⁸ Ex. 33, pages 18-21.

⁴⁹ Ex. 33, page 15.

NRC License Termination Cost Estimates **2 & 3 Unit Sites, Pressurized Water Reactors** *(Estimates by year of \$s)*



Site Restoration Cost Estimates **2 & 3 Unit Sites, Pressurized Water Reactors** *(Estimates by year of \$s)*



The discrepancy in License Termination costs is of particular concern because the requirements applicable to this objective are established by the US NRC and should be comparable. Although PG&E identified a list of unique characteristics that distinguish Diablo Canyon from other comparable facilities, a majority of

these are not relevant to License Termination.⁵⁰ Those that were relevant to License Termination include an increase in anticipated waste, more robust seismic design, and expected lower levels of soil contamination.⁵¹ PG&E could not identify any material changes in any federal requirements between 2008 and 2016 that could account for the increase in anticipated License Termination costs at Diablo Canyon.⁵²

As explained by TURN witness Lacy, “the degree of similarity, specifically in the nuclear part of the power plants that is regulated by the NRC for License Termination, suggests there should be a comparable degree of similarity in the License Termination portion of decommissioning cost estimates, adjusting for the differences that may exist. We do not see this with the Diablo Canyon cost estimate.”⁵³ TURN’s review concludes that PG&E has failed to establish a compelling basis for the License Termination cost estimate to diverge so significantly from the comparable plants across the country.

PG&E criticizes Mr. Lacy’s comparison on two grounds. First, PG&E argues that TURN should have included the recently-approved estimate for SONGS 2 and 3.⁵⁴ As explained by Mr. Lacy during evidentiary hearings, his comparison was limited to studies performed by TLG and designed to avoid the challenge of comparing cost estimating methodologies used by different vendors.⁵⁵ The SONGS estimate was not prepared by TLG but instead by Energy Solutions. In response to cross-examination questions, TLG witness Seymore was unable to explain the extent to which the methodology used by Energy Solutions differs

⁵⁰ Ex. 33, page 19.

⁵¹ Ex. 33, page 19.

⁵² Ex. 33, page 20.

⁵³ Ex. 33, pages 19-20.

⁵⁴ Ex. 15, pages 1-1 through 1-2, 2-5 through 2-6.

⁵⁵ RT Vol. 2, page 204.

from the TLG methodology and could not compare the two estimating approaches.⁵⁶

Mr. Lacy also noted that “SONGS really does have some basic differences at the site and some basic differences in requirements for the cost estimate.”⁵⁷ These differences include a different plant design, a small congested site, the presence of a third unit (SONGS 1), and a Navy lease that includes unique and extreme removal obligations.⁵⁸ These facts make it difficult to compare the two estimates especially given that PG&E did not provide any data on specific cost estimating input assumptions used at both SONGS and Diablo Canyon. As explained in Section IX, the Commission ordered PG&E in D.14-12-082 to provide a Common Summary Format for decommissioning cost estimates in the 2015 NDCTP.⁵⁹ In the 2012 NDCTP, PG&E and SCE provided a comparison of key input assumptions for SONGS and Diablo Canyon. However, PG&E did not provide information to permit such a comparison in the current NDCTP. Without this type of information, it is difficult to meaningfully compare the Diablo Canyon and SONGS estimates.

PG&E’s second critique cites the fact that the TLG estimate for License Termination costs at Indian Point 2 and 3 exceeds \$1.25 billion.⁶⁰ Mr. Lacy’s comparison does not include these facilities. However, TURN’s cross-examination of TLG witness Seymore highlights significant differences between these sites that should be taken into account. First, the Indian Point studies assume a substantial delay (several decades) before active decommissioning

⁵⁶ RT Vol. 1, page 69.

⁵⁷ RT Vol. 2, page 205.

⁵⁸ RT Vol. 2, page 205.

⁵⁹ D.14-12-082, page 98.

⁶⁰ Ex. 15, page 1-1.

occurs.⁶¹ Second, Indian Point has three nuclear units on the site (compared to two units at Diablo Canyon). The Indian Point Unit 2 and 3 License Termination estimates referenced by Mr. Seymore include the cost of addressing significant contamination attributable to a third reactor (Unit 1).⁶² There is no similar contamination at the Diablo site from a third unit. Finally, the overall cost estimate for License Termination at Diablo Canyon remains 30% higher (\$2.177 billion for the SAFSTOR scenario) than Indian Point (\$1.674 billion) even without adjusting the estimate to remove the costs of unique onsite contamination.⁶³

TURN therefore urges the Commission to find that the increasing divergence between the Diablo Canyon License Termination estimate and the License Termination estimates for other comparable facilities around the country raises questions about the validity of the Diablo Canyon estimate. TURN is not asking the Commission to adopt adjustments to the overall cost estimate based on this comparison but instead to conclude that higher scrutiny should be applied to questionable assumptions proposed by PG&E that contribute to this differential.

D. PG&E has the burden of proof to demonstrate the reasonableness of cost estimates, especially when a large increase is proposed for a specific category of costs relative to a prior estimate.

PG&E has the affirmative burden of proof to demonstrate that the assumptions included in the cost estimate are reasonable. This burden of proof requires a finding that a preponderance of evidence supports the outcomes sought by the

⁶¹ RT Vol. 1, page 48.

⁶² The Unit 2 estimate references 379,000 cubic feet of soil contaminated by Unit 1, which comprises over 60% of the total low-level radioactive waste characterized as Class A material. The expected costs of this contamination were not easily identifiable in the Unit 2 estimate. (Ex. 19, pages 4-5; RT Vol. 1, pages 50-51) The Unit 3 estimate identifies \$116.7 million (in \$2010) in License Termination costs attributable to contamination from Unit 1. (Ex. 19, pages 8-10)

⁶³ Ex. 3, page 2-AtchA-21; Ex. 19, RT Vol. 1, page 47.

utility.⁶⁴ In critiquing the proposed Diablo Canyon estimate, TURN believes that PG&E has failed to satisfy its burden of proof on a number of key issues. While the application, testimony and workpapers provide significant detail on some topics, many of the large drivers of cost increases are not supported by adequate documentation and lack credibility. The Commission should find that this presentation fails to satisfy PG&E's normal standards for providing clear, precise, and useful explanations of requests for rate increases.

In the 2012 NDCTP, TURN raised concerns about the lack of support in PG&E's application and testimony for assumptions that drove major increases in the cost estimate and would result in immediate rate increases for current customers. The Commission agreed with many of TURN's critiques and declined to approve \$448 million of the cost estimate proposed by PG&E. In assessing whether PG&E had satisfied its burden of proof, the Commission offered the following warning:

We share much of TURN's frustration with PG&E's attitude about how little it needs to say in order to establish a higher cost estimate and obtain almost \$1 billion from ratepayer to increase the DCP trust funds. Adequate funding is a very important goal which the Commission takes very seriously. However, it is not a basis for blank check funding of arbitrary or simply neglected proposed increases.... when a utility seeks large increases it should expect to provide more than an offhand sentence or two as the basis for costly changes... The Commission and intervenors should not have to engage in extensive discovery and cross-examination to ferret out scarce or absent reasoning behind assumptions or calculations with large effects.⁶⁵

Unfortunately, PG&E continues to request a 'blank check' based on scant reasoning, unreasonably extreme interpretations of future requirements, and

⁶⁴ D.14-12-082, page 13 ("The utilities bear the burden of proof in this ratesetting proceeding to show, by a preponderance of evidence, that the proposed cost estimates for completing decommissioning of SONGS 2 and 3, Palo Verde, and Diablo Canyon, and to maintain SAFSTOR conditions during decommissioning, are reasonable.")

⁶⁵ D.14-12-082, pages 106-107.

references to information that cannot be found anywhere in its application. Most incredibly, PG&E practically ignores the Commission's rejection of \$448 million in estimated costs in the last NDCTP and fails to make a serious effort to explain why previous disallowances should be approved this time around. The Commission should apply the same level of scrutiny to PG&E's showing in the current NDCTP and put all utilities on notice that any proposals for rate increases must be fully supported by evidence included in the application, testimony and associated workpapers. In the following sections, TURN identifies specific areas where PG&E failed to meet its burden of proof.

1. Security costs

PG&E proposes to double total security costs from \$343 million (in the previously adopted estimate) to \$687 million.⁶⁶ By comparison, the current estimate would more than triple the security costs included in the 2009 study (\$193 million).⁶⁷ TURN does not believe that PG&E has satisfied its burden of proof to justify an increase of this magnitude given the lack of supporting documentation or even basic calculations that allow the Commission to understand the basis for the total changes.

In the 2012 NDCTP, the Commission declined to approve \$107.7 million in proposed security costs in the estimate on the basis that PG&E failed to satisfy its burden of proof. At the time, the TLG consultant hired by PG&E stated that he had never prepared a decommissioning study with an increase of this magnitude for wet fuel storage security costs.⁶⁸ The current estimate includes a significantly larger increase in security costs than sought by PG&E in the 2012 NDCTP.

⁶⁶ Ex. 2, page 2-29, Table 1. Both figures are in \$2014.

⁶⁷ D.14-12-082, page 88 (\$193 million is the sum of lines 2 and 11).

⁶⁸ D.14-12-082, page 99.

In rejecting \$107.7 million in proposed security costs as part of the 2012 NDCTP estimate, the Commission expressed concern about the lack of any independent review of the details supporting the increase and explained that PG&E could “return in 2015 to offer more evidence to support its estimates of necessary personnel”.⁶⁹ The Decision notes that “proposing increases to security activities sounds comforting, but we wonder to what extent it is reasonable to rely on PG&E’s security personnel to estimate future costs for themselves without review.”⁷⁰

Despite the Commission’s admonitions in the 2012 NDCTP, PG&E provides little additional evidence in this proceeding to justify the massive increase in security costs. Instead of providing detailed justifications with clear calculations showing the exact basis for the increase between the adopted 2012 estimate and the 2016 estimate, PG&E offers a short narrative description and identifies a few modest adjustments that, on their own, would not appear to drive a doubling of total costs. The Commission should not permit such slim “evidence” to serve as the basis for such a massive increase in overall costs.

PG&E’s record support for the \$344 million increase is relatively thin. All the assumptions related to security were developed exclusively by PG&E and incorporated by TLG into the study. TLG did not review the reasonableness of these input assumptions and there was no outside independent review of the staffing levels or costs by any non-PG&E personnel.⁷¹

While PG&E points to NRC site-specific requirements as the basis for their

⁶⁹ D.14-12-082, pages 100-101.

⁷⁰ D.14-12-082, page 100.

⁷¹ Ex. 4, page 3-5 (PG&E points to the security assumptions developed by Diablo Canyon management being “independently verified” by other PG&E personnel at Diablo Canyon. This type of review should not be considered “independent”).

request, no details are provided to allow the Commission to assess the impact of the particular obligations on overall costs.⁷² PG&E also fails to note the fact that the NRC leaves substantial discretion to the licensee to develop security plans and instead implies that the increases are mandated by NRC regulation. As explained by TURN witness Lacy, the NRC provides significant latitude to the licensee and “if you elect to spend more money, the NRC is not going to tell you not to spend more money.”⁷³

The testimony of TLG witness Seymore explains that PG&E provided “security labor rates and equipment and material costs, and specific security levels identified for various phases of the project integrated with the decommissioning schedule.”⁷⁴ The TLG testimony references a net “increase of 337 security force full time employee-years” to reflect “higher staffing levels throughout the ten-year wet spent fuel storage period, but a shorter time in which the fuel will remain in the spent fuel pool.”⁷⁵ Nothing in the TLG testimony explains how this net increase of 337 security force full time employee years translates into a \$344 million increase.

The testimony of PG&E witness Sharp identifies the following drivers that purport to justify a doubling in security costs:

an average increase of 16.5 percent to the position classifications since the 2012 NDCTP as well as using the specific classification labor rates in place over an average labor rate, a 15 percent increase in the number of security personnel required during the wet spent fuel cooling period, an increase of seven security personnel required during the dry fuel storage period, and the increase in the dry spent fuel storage period due to the extension

⁷² Ex. 4, page 3-5.

⁷³ RT Vol. 2, page 227.

⁷⁴ Ex. 2, page 2-6.

⁷⁵ Ex. 2, page 2-6.

of the DOE's commencement date for its spent fuel pick-up program.⁷⁶

PG&E does not attempt to demonstrate either the reasonableness of these particular assumptions or show how these particular changes in assumptions result in a doubling of total costs. There is no additional support or details for security costs in PG&E's testimony and workpapers.⁷⁷ As a result, it is impossible to perform any reconciliation between the assumptions incorporate into the adopted 2012 estimate and those that cause a doubling of costs in the 2016 proposal.

TURN witness Lacy expressed concern about the proposed increases during evidentiary hearings. He explained that a doubling of costs "does not comport with my general level of understanding of what's going on with security requirements in the industry."⁷⁸ Mr. Lacy noted that NRC security requirements decrease as decommissioning progresses and that PG&E did not provide adequate support for its assumptions regarding security.⁷⁹

Because PG&E did not satisfy its burden of proof and failed to provide sufficient supporting analysis requested by the Commission in the 2012 NDCTP, the \$344 million increase in security costs should not be approved at this time. PG&E may return in the next NDCTP and make a more robust showing to justify an increase in security costs.

2. Utility and DOC costs

PG&E proposes to increase the estimated cost of Utility and DOC staff from \$562

⁷⁶ Ex. 4, page 3-6.

⁷⁷ RT Vol. 1, page 100.

⁷⁸ RT Vol. 2, page 243. Both figures are in \$2014.

⁷⁹ RT Vol. 2, pages 243-244.

million (adopted in the 2012 NDCTP) to \$873 million.⁸⁰ TURN does not believe that PG&E has satisfied its burden of proof to justify a \$311 million increase given the lack of supporting documentation or even basic calculations that allow the Commission to understand the basis for the total changes.

The TLG testimony does not provide any particular accounting for the \$311 million increase but instead cites various changes from 2012 including higher staffing levels for reactor vessel segmentation and large component removal, greater staff needs during wet fuel storage, and some reductions in staffing due to a shorter wet fuel storage duration.⁸¹ When asked during evidentiary hearings to explain the significant drivers of the cost increase, TLG witness Seymore could not identify a particular rationale other than the addition of an “increase in the number of personnel” made at the direction of PG&E.⁸² According to Mr. Seymore, TLG advised PG&E that the proposed staffing increases would have “a significant cost impact” but PG&E insisted upon the revised inputs based on experiences at Humboldt Bay and PG&E’s “understanding of the information they were receiving from the Zion experience”.⁸³

Based on a review of the cost study itself, approximately \$298 million of the \$311 million increase is attributable to higher Utility and DOC staff costs during Period 2a when large component removal is scheduled to occur.⁸⁴ To the extent that the Commission adopts TURN’s recommendation to deny any increases attributable to large component removal, TURN’s recommendation to reject Utility and DOC staff cost increases should be adjusted by \$298 million (leaving

⁸⁰ Ex. 2, page 2-29, Table 2-1, line 2.

⁸¹ Ex. 2, page 2-6 and 2-7.

⁸² RT Vol. 1, pages 43-44.

⁸³ RT Vol. 1, page 45.

⁸⁴ This calculation is based on the proposed increase for DOC and utility staff line item costs during Period 2a (Large Component Removal) in the 2012 adopted study and the 2014 TLG study. (See Ex. 3, page 2-AtchA-18 through 2-AtchA-19).

only \$13 million in unexplained costs).

The testimony of PG&E witness Sharp offers only 10 lines of text to support the \$311 million increase.⁸⁵ Although the justification for this increase is “PG&E’s own decommissioning experience at HBPP”, there is no precise accounting offered for the manner in which the HBPP “experience” was used to adjust the 2012 approved estimate.⁸⁶ No workpapers or supporting materials in the record offer these types of details.

In the 2012 NDCTP, the Commission declined to approve a \$129.8 increase in this category based on the lack of sufficient explanation in PG&E’s testimony. In adopting TURN’s proposal to reject this adjustment, the Commission explained

We agree that PG&E’s inclusion of a line item in a table is not sufficient to establish the reasonableness of PG&E’s requested increase. It is unclear whether the increase includes any increase in expected GTCC, or if in fact the increase is all labor. PG&E also fails to explain why it will be adding personnel after permanent shutdown. Therefore, we find it reasonable to disallow PG&E’s estimated costs of \$129.8 million for this cost category. PG&E did not meet its burden of proof to establish the amount is reasonable.”⁸⁷

In the current application, PG&E similarly fails to document or justify the increase in labor costs due to higher rates, greater staffing levels and a longer duration of project work. TURN is very concerned that this change, along with all others driven by labor costs, may not be reasonable and has been made for the sole purpose of increasing the total cost estimate. TURN addresses concerns with large component removal costs, which appear include some of the increases contained in the Utility and DOC staff category, in the following section.

⁸⁵ Ex, 4, page 3-6.

⁸⁶ Ex, 4, page 3-6.

⁸⁷ D.14-12-082, pages 105-106.

3. Large component removal

PG&E proposes a 77% increase (or \$492 million) in the costs of work related to Large Component Removal from \$638 million (in the 2012 approved study) to \$1,130 million in the current study.⁸⁸ Compared to the amounts approved for this scope of work in the 2009 study (\$528 million), the costs in the current study have almost doubled.⁸⁹ Large component removal is part of the License Termination objective and consists of removing the reactor vessel, steam generators, and other large components that are part of the nuclear systems inside the containment structure. TURN believes that the Commission should not adopt the \$492 million increase proposed by PG&E.

Based on a review of the cost study itself, approximately \$298 million of the \$492 million increase is attributable to higher Utility and DOC staff costs.⁹⁰ To the extent that the Commission adopts TURN's recommendations to deny any increases attributable to large component removal, TURN's recommendation to reject Utility and DOC staff cost increases should be adjusted by \$298 million (leaving only \$13 million in unexplained costs in that category).

Testimony by TLG identifies an increase of \$134.7 million associated with increased staffing, equipment, and materials costs for reactor pressure vessel and reactor pressure vessel internals disposition.⁹¹ The increases in this cost category were attributable to inputs provided by PG&E relating to additional staffing and

⁸⁸ Ex. 33, page 22, Table IV-1; These figures are the totals for costs attributable to "Period 2a – Large Component Removal" in the TLG Study (See Ex. 3, page 2-AtchA-18 through 2-AtchA-19).

⁸⁹ Ex. 33, page 22, Table IV-1.

⁹⁰ This calculation is based on the proposed increase for DOC and utility staff line item costs during Period 2a (Large Component Removal) in the 2012 adopted study and the 2014 TLG study. (See Ex. 3, page 2-AtchA-18 through 2-AtchA-19).

⁹¹ Ex. 2, page 2-8.

longer time to accomplish the work.⁹² None of the cost increases related to this scope of work were suggested or vetted for reasonableness by TLG.

Testimony by PG&E references a timeline for performing similar work at the Zion facility as the basis for increasing the anticipated duration of the project at Diablo Canyon.⁹³ These two short narratives by TLG witness Seymore and PG&E witness Sharp appear to constitute the sum total of information supporting the cost increase. Neither addresses the remaining increases in costs for the Large Component Removal category (most of which appear to be attributed to Utility and DOC staff).

PG&E provides little basis for the massive cost increase in its testimony and workpapers. During cross-examination, PG&E witness Sharp claimed that the primary basis for the cost increase was information relating to the Zion decommissioning effort obtained by attending a conference and summarized in three lines of direct testimony.⁹⁴ However, PG&E's claims are questionable in light of the unique situation at Zion and the lack of reliable, complete and public information about that decommissioning effort.

When asked about the decommissioning experience at Zion, TLG witness Seymore explained the difficulty of reaching any specific conclusions given the absence of publicly available information on that project.⁹⁵ Mr. Seymore explained that any analysis of Zion requires a review of a large volume of information related to staffing levels, detailed schedules, details "about every shipment they sent out" and more specifics that are not now, and may never, be

⁹² RT Vol. 1, pages 53-54.

⁹³ Ex. 4, page 3-10.

⁹⁴ RT Vol. 1, page 101; Ex. 4, page 3-10, lines 26-28.

⁹⁵ RT Vol. 1, pages 60-61.

publicly available.⁹⁶ TURN witness Lacy reinforced this concern and explained that “the level of information available in the public domain about what’s gone on at Zion is actually fairly limited” and noted that information provided by PG&E in the course of discovery reinforced his belief “that there continues to be quite a few limitations on what we actually know about Zion.”⁹⁷

PG&E did not include any material in its testimony or workpapers demonstrating that it had obtained, reviewed and analyzed comprehensive information relating to Zion. PG&E also did not indicate whether there are other offsetting cost reductions at Zion that were not incorporated into the Diablo Canyon estimate. Furthermore, PG&E has not presented any evidence to demonstrate that Zion and other similar facilities are facing overall increases in total decommissioning costs attributable to large component removal efforts. Few details relating to Zion were provided to either TLG or the Commission.

The decommissioning experience at Zion is unique and should be treated with caution. It involves a unique first-of-a-kind business relationship between the party doing the physical decommissioning work, EnergySolutions, and the original plant owner (Exelon). TLG witness Seymore explained that the specific arrangement at Zion has “never been done before” and involves a complete transfer of site ownership to an independent company responsible for completing active decommissioning before transferring the site back to Exelon.⁹⁸ PG&E is not assuming a similar arrangement at Diablo Canyon.⁹⁹

It appears that PG&E assumed a worst-case scenario based on a limited and still unfolding understanding of the experience at Zion and a very costly experience

⁹⁶ RT Vol. 1, pages 60-61.

⁹⁷ RT Vol. 2, pages 209-210.

⁹⁸ RT Vol. 1, page 58.

⁹⁹ RT Vol. 1, pages 58-59.

based on the highly contaminated environment and challenging site issues at Humboldt Bay. As explained in previous sections, TURN believes the Commission should not rely on the HBPP experience due to the significant differences between the two sites, facilities, contamination levels and other factors.¹⁰⁰

PG&E's reliance on the experience at Zion is further undermined by the fact that Exelon, the original owner of Zion and the final owner of the decommissioned site after completion of the task by EnergySolutions, commissioned TLG to prepare recent decommissioning studies for three other facilities that show no evidence of cost increases related to large component removal. During the course of reactor vessel segmentation and vessel removal at Zion, Exelon provided TLG with specific inputs for decommissioning cost studies at Byron and Braidwood. These studies show no evidence of any impact of the Zion experience on the cost estimate despite the fact that the studies were completed in mid-2014, several years into the decommissioning project at Zion.¹⁰¹ According to TLG witness Seymore, who prepared the Byron and Braidwood studies, Exelon did not provide any changes to the cost estimate based on the Zion experience with large component removal.¹⁰² Similarly, a TLG study prepared by Mr. Seymore and released in early 2016 of the Exelon-owned Oyster Creek plant shows no material change in the schedule or cost related to this scope of work apart from a \$2.75 million increase related to the cost of vessel segmentation equipment.¹⁰³ By comparison, PG&E assumes approximately \$492 million in higher costs. It is

¹⁰⁰ See Section IV(B); Also *see* RT Vol. 2, page 213, Lacy ("there's some very significant differences between the experience at Humboldt and the experience at Diablo Canyon, of which the very first item on the list of differences is the very significant amount of alpha contamination throughout and around the nuclear steam supply system and even parts of the site that existed there.")

¹⁰¹ RT Vol. 1, page 59.

¹⁰² RT Vol. 1, pages 59-60.

¹⁰³ RT Vol. 1, pages 62-67; Ex. 20, pages 5, 7, 13.

telling that these other cost studies for Exelon-owned plants do not support PG&E's cost claims.

TURN witness Lacy proposed benchmarking the Diablo Canyon large component removal cost against the estimates for Braidwood and Byron.¹⁰⁴ These reactors have the same design as Diablo Canyon and are owned by Exelon. Mr. Lacy explained that he selected these two plants because they had recent cost estimates that were completed during a period when any increased costs and schedule delays at the Zion facility would have been known to Exelon (the owner of all three plants). As explained by Mr. Lacy, although Exelon "would certainly be aware that there were significant delays", the "estimates for Byron and Braidwood show relatively little change from their prior years... if anyone should know what's going on at Zion, it's Exelon."¹⁰⁵

The costs for large component removal at Braidwood and Byron in the most recent studies averages to \$595.9 million.¹⁰⁶ By comparison, PG&E proposes to increase the cost for this same scope of work from \$638 million (in the 2012 approved study) to \$1,130 million in the current study.¹⁰⁷ TURN understands that reducing the Diablo estimate to conform with the Byron and Braidwood studies would lead to a reduction relative to the 2012 approved estimate. Instead of reducing this element of the cost estimate, TURN recommends that the Commission decline to approve any increases for large component removal at this time.

The Commission should also direct PG&E to make a more comprehensive showing in the next NDCTP that includes all available documentation relevant to

¹⁰⁴ Ex. 33, pages 22-23.

¹⁰⁵ RT Vol. 2, pages 210-211.

¹⁰⁶ Ex. 33, page 23.

¹⁰⁷ Ex. 33, page 22.

other decommissioning projects that face similar challenges. Only by considering a wide range of comparable facilities can the Commission be confident that PG&E is not cherry-picking extreme individual assumptions for the sole purpose of unreasonably inflating the Diablo Canyon cost estimate.

4. Removal of all onsite concrete as contaminated via “Rip and Ship”

PG&E assumes the use of a “rip and ship” approach to structures on the Diablo Canyon site. Under this approach, PG&E would assume all buildings with any contamination are demolished and treated as low-level radioactive waste rather than selectively removing contaminated materials and seeking lower-cost disposal options for the remaining clean materials. Given the potentially higher cost associated with the use of “rip and ship”, TURN does not believe that it is an appropriate assumption to use for cost estimation purposes.

In the 2012 NDCTP, the Commission rejected \$76.5 million in forecasted decommissioning costs attributable to the assumption that all concrete within the reactor steel liner is contaminated and would be treated as low-level radioactive waste. The Commission agreed with TURN’s concerns and explained

Although there are limits to performing a standard cost/benefit analysis for work to be done in the future under conditions unknown, we are not persuaded that PG&E conducted any analysis before deciding to alter its assumption to “rip and ship.” There is evidence that two other nuclear facilities used the approach a decade ago, it might save time and money if the contamination exists in certain ways, and that it is likely easier for the project manager. But, this is a thin basis to make the change which results in higher estimated costs for ratepayers.¹⁰⁸

In the current estimate, PG&E adopts a new and expanded “rip and ship” assumption for all buildings on the plant site (not just concrete within the reactor

¹⁰⁸ D.14-12-082, page 103.

steel liner).¹⁰⁹ Despite the Commission's admonition in D.14-12-082, PG&E admits that it "did not perform a specific cost benefit analysis" or conduct any other analysis to support this new assumption.¹¹⁰ PG&E has also not identified any serious issues with contaminated surfaces at Diablo Canyon that deserve the rip and ship approach.¹¹¹ Given the high costs associated with waste burial, packaging and transportation, PG&E should assess whether "rip and ship" would increase the overall cost of decommissioning and if alternatives could prove cheaper.

PG&E cites the experience at HBPP and the SONGS cost estimate as the basis for applying this assumption to Diablo Canyon. However, the experience at HBPP is easily distinguishable due to the widespread and extensive contamination that is described in Section IV(B). There is no basis for assuming any comparable contamination at Diablo Canyon. With respect to SONGS, PG&E witness Sharp admitted during cross-examination that "rip and ship" is only assumed for structures "inside containment" while PG&E applies this assumption for all contaminated structures on the site footprint at Diablo including those outside of containment.¹¹² PG&E offers no particular basis for applying this assumption to all contaminated buildings on the entire site.

Because PG&E offers no compelling rationale for adopting this expanded "rip and ship" assumption, and in light of the rejection of this assumption in the 2012 NDCTP, the Commission should decline to allow PG&E to incorporate this assumption in the current Diablo Canyon estimate.

¹⁰⁹ Ex. 23, page 1, PG&E response to TURN Data Request 7, Question 1.

¹¹⁰ Ex. 23, page 1, PG&E response to TURN Data Request 7, Question 1.

¹¹¹ Ex. 33, page 25.

¹¹² RT Vol. 1, pages 111-112; Ex. 23, page 3.

5. Assumption that all onsite construction debris is sent for out-of-state disposal

PG&E assumes that all onsite construction debris (or “decommissioning waste”) must be sent to an out-of-state landfill rather than being used as either onsite fill or sent to any in-state landfill.¹¹³ This changed assumption appears to increase the cost estimate by approximately \$312 million.¹¹⁴ PG&E argues that this assumption is warranted due to the requirements of Executive Order D-62-02 issued by Governor Gray Davis in 2002.¹¹⁵ This assumption was provided by PG&E and TLG did not perform any analysis on either the requirements of Governor’s executive order or alternative compliance options.¹¹⁶

PG&E claims that this executive order established a moratorium on sending any “decommissioning waste” to any in-state landfill.¹¹⁷ Under the executive order, “decommissioned materials” are defined as “materials with low residual levels of radioactivity” from a “licensed site” that uses radioactive materials in California and has been decommissioned.¹¹⁸ Any such materials that have “low residual levels of radioactivity” may not be disposed in a Class III landfill until the Department of Health Services completes an assessment of the “public health and environmental safety risks” associated with the disposal of radioactive materials and establishes regulations setting dose standards.¹¹⁹

¹¹³ Ex. 2, page 2-3. PG&E’s own testimony (Ex. 2, page 2-29, Table 2-1) shows an increase of \$244 million for the breakwater disposition (line 5) and an increase of \$81 million for backfill and remove concrete rubble (line 21). This total increase of \$325 million may not fully capture the incremental costs attributable to this assumption.

¹¹⁴ Ex. 33, page 25.

¹¹⁵ Ex. 4, page 3-3.

¹¹⁶ RT Vol. 1, page 19.

¹¹⁷ Ex. 4, page 3-3.

¹¹⁸ Ex. 34, page 76, Executive Order D-62-02.

¹¹⁹ Ex. 34, page 78, Executive Order D-62-02.

The Executive order was issued in tandem with a veto of SB 1970. As explained in the Governor's veto message, SB 1970 would have prohibited any decommissioned materials "with the slightest trace of detectable radioactivity not attributable to background sources" from being disposed at any solid or hazardous waste disposal facility in California.¹²⁰ SB 1970 would have imposed these restrictions on any "radioactive waste" that was defined as "discarded radioactive material with radioactivity above the background level when measured with the best available technology."¹²¹

Governor Davis vetoed SB 1970 based on his concern that

The practical effect of this bill would be to force California businesses, universities, and medical facilities to ship tons of material, such as dirt and concrete, that has not been determined to present a public health risk, to out-of-state disposal facilities.¹²²

Instead of the highly restrictive approach in the bill, Governor Davis issued an executive order that limited the moratorium to the "disposal of decommissioned materials above background levels in public landfills (Class III) and unclassified waste management facilities."¹²³

Despite the explicit language of the executive order, the veto message and the text of SB 1970, PG&E embraces the extreme interpretation that any material originating from a nuclear power plant site is subject to the moratorium regardless of whether the materials have any residual radioactivity that exceeds background levels. Under cross examination, PG&E witness Salmon offered his

¹²⁰ Ex. 34, page 74, Governor's Veto message re: SB 1970.

¹²¹ Senate Bill 1970 (2002), "Radiation Safety Act of 2002", Proposed Health and Safety Code §115301(f). The version of this bill that was vetoed by the Governor can be found on the official California Legislative Information site (http://leginfo.ca.gov/faces/billTextClient.xhtml?bill_id=200120020SB1970).

¹²² Ex. 34, page 74, Governor's Veto message re: SB 1970.

¹²³ Ex. 34, page 75, Governor's Veto message re: SB 1970.

view that the moratorium applies to perfectly clean and uncontaminated materials regardless of whether they have any trace of residual radioactive contamination.¹²⁴ While PG&E characterizes its position as “conservative”, this interpretation not only goes well beyond the requirements of the Executive Order but appears to be more extreme than the requirements of SB 1970 that prompted the Governor’s veto.¹²⁵

PG&E’s position relies on the notion that there is “ambiguity” between the executive order and subsequent orders of the Water Board.¹²⁶ Yet a review of these two orders reveals no such ambiguity since the Water Board order defines decommissioned materials subject to the moratorium as “radioactive materials in excess of local background levels”.¹²⁷ Both the Executive Order and the Water Board order apply the moratorium to materials that have some amount of radioactive contamination. There is simply no rational basis to conclude that the moratorium applies to materials that are perfectly clean, lack any contamination, and do not have detectable radioactivity above background levels.

The consequences of this extreme interpretation are significant. When applied to the decommissioning cost estimate, PG&E assumes that all clean concrete with zero contamination must be transported out of California. This requirement would therefore apply to the concrete barriers at security checkpoints, construction debris from various onsite structures, and the large breakwater.¹²⁸ The largest cost impact (between \$199-\$244 million) of this assumption is due to the need to ship 1.4 million tons of clean concrete removed from the breakwater

¹²⁴ RT Vol. 1, page 87, Salmon (“Q: So no matter how clean the material might be, it’s your interpretation that that material must be disposed of consistent with the moratorium? / A: Yes.”)

¹²⁵ Ex. 15, page 3-7.

¹²⁶ RT Vol. 1, page 80.

¹²⁷ Ex. 15, page 3-3.

¹²⁸ Ex. 2, page 2-4; RT Vol. 1, pages 23-24.

structure to an out-of-state landfill.¹²⁹

TURN witness Lacy characterized PG&E's interpretation of the executive order as "extreme" and noted that there is no evidence that PG&E considered any alternative interpretations that would substantially reduce costs to customers.¹³⁰ In particular, there are five alternatives PG&E failed to consider that could mitigate the cost impacts on ratepayers.

First, PG&E could assume that clean and uncontaminated materials would not be subject to the requirements of the Executive Order and could be disposed at in-state Class III landfills. This assumption is fully consistent with the explicit language and intent of the Executive Order and the Water Board orders.

Second, PG&E assumes that the moratorium prohibits any clean materials removed from the Diablo site from being disposed in a Class I or II in-state landfill despite the fact that the Executive Order only applies to Class III and unclassified waste management facilities.¹³¹ No efforts were made to consider or investigate the availability or cost of in-state disposal of clean, non-radioactive materials at an in-state Class I or Class II landfill.¹³²

Third, PG&E assumes that all materials not classified as low level radioactive

¹²⁹ Ex. 2, page 2-4 (the breakwater is far removed from any radiological portions of the plant and is not expected to have any contamination); RT Vol. 1, pages 80-81 (PG&E witness Salmon could not cite any evidence to suggest any contamination present for the breakwater.)

¹³⁰ RT Vol. 2, page 242.

¹³¹ RT Vol. 1, page 81; Ex. 34, page 78, Executive Order D-62-02 (stating that the requirements of the moratorium "are applicable to Class III landfills and unclassified waste management units throughout the state.")

¹³² RT Vol. 1, page 81, 90-91 (PG&E witness Salmon offered the unsupported and illogical claim that future regulations could theoretically prohibit the disposal of clean materials at any in-state landfill. PG&E does not apply this same standard to out-of-state landfills and assumes no potential for future regulation that would prohibit disposal of clean material at those facilities.)

waste would be sent to a landfill in Utah. PG&E's decision to assume the costs of disposal in a Utah landfill was based solely upon the fact that PG&E witness Salmon had personal knowledge of a single facility that might be suitable.¹³³ PG&E did not consider the potential that decommissioning waste could be shipped to closer facilities (which presumably would entail lower transportation costs) and failed to survey any other options in the West.¹³⁴

Fourth, PG&E did not consider the potential for any onsite reuse of soil and concrete that would otherwise be assumed to be sent out of state despite the fact that the Executive Order exempts onsite reuse from the moratorium.¹³⁵ This assumption differs from the cost estimates approved by the Commission in 2005, 2009 and 2012. In the 2005 estimate, for example, PG&E assumed that some processed demolition material "is used on-site for fill and additional soil used to cover each subgrade structure."¹³⁶ PG&E does not provide any basis for the Commission to conclude that the prior assumptions relating to the need for some quantity of onsite fill are no longer valid. Moreover, PG&E has not explained why additional onsite reuse of some clean material is not possible. Given the huge cost savings attributable to onsite reuse, PG&E should at least consider the extent to which this alternative is feasible.

PG&E has been permitted to use soil and concrete rubble for onsite fill at Humboldt Bay and SCE has done the same at the SONGS 1 site.¹³⁷ Despite these

¹³³ RT Vol. 1, page 93, Salmon ("Q: Why was that particular facility selected as an appropriate proxy? / A: I was asked at one point in time if there was an out-of-state industrial facility that could take these volumes of materials and I knew of that facility, so I said yes, there -- I know of one.")

¹³⁴ RT Vol. 1, page 93, Salmon ("Q: Did you survey other western states to determine whether there might be another set of acceptable proxies? / A: No.")

¹³⁵ Ex. 15, page 3-6; RT Vol. 1, page 83, Salmon.

¹³⁶ Ex. 23, page 6, PG&E 2005 NDCTP testimony; RT Vol. 1, page 122 (PG&E witness Sharp stated that he never reviewed the 2005 Cost Estimate).

¹³⁷ Ex. 33, page 24.

recent examples of reuse, PG&E witness Sharp claimed during cross-examination that his experience in dealing with the Coastal Commission led to the new assumption that no demolition materials could permanently remain on the site for any purpose.¹³⁸ To the extent that PG&E believes that any state agency would require this result, it should provide detailed documentation to support such an assumption in its application and testimony, not offer this claim in an offhand comment in response to cross-examination.

Fifth, the cost study fails to consider the potential for the breakwater to remain onsite and not be dismantled. Yet under cross-examination by ORA, PG&E conceded that the State Lands Commission and Coastal Commission may conclude that leaving the breakwater and other structures intact could constitute an environmentally preferable alternative.¹³⁹ Despite this potential, and without any particular justification, PG&E asserts that it is reasonable (and “conservative”) to assume that 100% of the breakwater is demolished and taken for disposal at an out-of-state landfill. This single assumption accounts for \$305.5 million in the overall cost estimate.¹⁴⁰

The Commission should reject PG&E’s extreme and unreasonable interpretation of the 2002 Executive Order. At a minimum, the Commission should deny any increases to the cost estimate attributable to compliance with the moratorium requirements until PG&E has conducted a more detailed assessment of options to minimize overall costs to ratepayers. In the next NDCTP, PG&E should demonstrate a good-faith effort to meaningfully evaluate alternatives rather than demanding the maximum possible increase to the estimate based on an assumed outcome that represents a ‘worst-case’ scenario.

¹³⁸ RT Vol. 1, pages 113-114.

¹³⁹ RT Vol. 1, pages 133-134.

¹⁴⁰ Ex. 2, page 2-29, Table 2-1, line 5. (\$305.5 million is the cost for dismantling the breakwater and transporting the concrete to a Utah landfill)

V. THE COMMISSION SHOULD DIRECT PG&E TO COMMIT TO PROMPT DECOMMISSIONING AT DIABLO CANYON

The current Diablo Canyon cost estimate does not indicate whether PG&E plans to pursue prompt decommissioning (DECON) or prefers to delay decommissioning until a future date (SAFSTOR). Under the SAFSTOR scenario, PG&E would delay the bulk of License Termination activities for several decades. Based on the decommissioning experience at HBPP, TURN recommends that PG&E commit to DECON for Diablo Canyon.¹⁴¹

In prepared testimony, TURN witness Lacy recommended that PG&E be directed to either pursue DECON or “provide a detailed study and report to the Commission on how they intend to properly enter into the delayed decommissioning (SAFSTOR) mode and how they intend to ensure proper stewardship of Diablo Canyon during SAFSTOR to avoid the cost increases and cost surprises experienced at HBPP.”¹⁴² Given the poor experience with SAFSTOR at HBPP, and the loss of critical knowledge during that period, it would seem unwise to repeat the same experiment at Diablo Canyon.

PG&E did not provide responsive rebuttal testimony on this point, claiming only that no decision has yet been made.¹⁴³ Under cross examination, PG&E witness Sharp said it is “possible” that PG&E could elect to pursue the SAFSTOR approach that would defer the bulk of work until several decades in the future.¹⁴⁴ PG&E’s schedule of projected expenditures under the SAFSTOR alternative shows active decommissioning commencing in 2062.¹⁴⁵

¹⁴¹ Ex. 33, page 6.

¹⁴² Ex. 33, page 6.

¹⁴³ Ex. 15, page 2-3.

¹⁴⁴ RT Vol. 1, page 117

¹⁴⁵ Ex. 3, pages 2-AtchA-76 through 2-AtchA-79.

Given the high level of public interest in post-decommissioning uses for the Diablo Canyon site, it is surprising that PG&E is openly contemplating the potential for decommissioning to be delayed so far into the future. The Commission should therefore adopt TURN's recommendation and establish a presumption in favor of prompt decommissioning.

VI. SPENT NUCLEAR FUEL COOLING PERIODS

PG&E directed TLG to assume that spent fuel can be transferred from wet storage to the onsite Independent Spent Fuel Storage Installation (ISFSI) within 10 years of plant shutdown.¹⁴⁶ In the 2012 NDCTP, both SCE and PG&E assumed that a delay of 12 years was necessary before moving fuel to the ISFSI at both the SONGS and Diablo Canyon plants.¹⁴⁷ In the most recent update to the SONGS estimate, SCE reduced this timeline and now assumes the transfer to dry storage and termination of spent fuel pool operations within 6 years after permanent shutdown.¹⁴⁸

In the 2012 NDCTP, PG&E insisted that a 12-year delay in transferring fuel to the ISFSI was the minimum and could not be reduced. In this proceeding, PG&E now insists that a 10-year delay is the minimum realistic timeline. TURN believes that PG&E's 10-year assumption is overly conservative, unrealistic, and outside of industry norms. The Commission should direct PG&E to explore all possible strategies to realize the cost savings resulting from a shorter timeline to terminating operations of the wet pools. To reflect this reality, the cost estimate should be reduced by \$197 million to reflect a more appropriate 7-year cooling period for spent fuel.

¹⁴⁶ Ex. 2, page 2-5.

¹⁴⁷ D.14-12-082, page 23.

¹⁴⁸ Ex. 18, page 18.

The Commission affirmed in the 2012 NDCTP the importance of minimizing the spent fuel transfer time, affirmed its “oversight interest” on this issue in order to minimize ratepayer costs, and directed each utility to provide additional information on the cost savings that could be achieved by reducing the period of wet storage for nuclear fuel.¹⁴⁹ Specifically, the Commission stated that “the utilities should be considering the regulatory and economic impacts of taking steps to transfer SNF to dry cask storage as soon as practicable.”¹⁵⁰ Furthermore, the Commission directed each utility to compare the “annual cost impacts of retaining Spent Nuclear Fuel in wet versus dry storage for seven years and any longer timeframe assumed in the decommissioning cost estimate.”¹⁵¹

Because storing fuel in the pools is far more expensive than dry storage, the 10-year assumption has substantial cost impacts. PG&E estimates a cost savings of \$65.553 million for each year that the time of wet fuel storage is reduced.¹⁵² A reduction to 7 years (from the 10-year assumption in the current estimate) would result in a savings of \$197 million for purposes of the cost estimate. During hearings, TURN witness Lacy emphasized the potentially significant ratepayer savings that could be achieved through a reduction in the duration of wet fuel storage.¹⁵³

In direct testimony, PG&E asserts that it “does not believe” that transfer of spent fuel to dry storage can occur in fewer than 10 years.¹⁵⁴ This assumption is at odds with the transfer assumptions at SONGS (6 years after shutdown) and Palo

¹⁴⁹ D.14-12-082, pages 29-30.

¹⁵⁰ D.14-12-082, page 30.

¹⁵¹ D.14-12-082, Ordering Paragraph #1.

¹⁵² Ex. 2, page 2-36, Table 2-8.

¹⁵³ RT Vol. 2, page 245.

¹⁵⁴ Ex. 4, page 3-8.

Verde (6 years after shutdown).¹⁵⁵ It is also outside industry norms for similar facilities across the country. In order to provide the Commission with a comparison of Diablo Canyon to other industry norms, TURN asked PG&E to name other commercial nuclear plants using similar fuel types to Diablo Canyon and PG&E named six specific facilities.¹⁵⁶ The record evidence shows the following assumptions for the duration of wet fuel storage at these six facilities as incorporated into the latest TLG cost estimates:

Vogtle – 5 years¹⁵⁷

Farley – not available

Callaway – 5.5 years¹⁵⁸

Byron – 5.5 years¹⁵⁹

Braidwood – 5.5 years¹⁶⁰

Comanche Peak – 5.5 years¹⁶¹

Based on this comparison of facilities identified by PG&E, and the 6-year timeline assumed for SONGS and Palo Verde, there is no basis for concluding that a 10-year wet cooling period is necessary or reasonable. Despite its position in this proceeding, PG&E has already conceded that the 10-year assumption is excessive and should be reduced. On June 21, 2016, PG&E announced a Joint Proposal to shut down Diablo Canyon at the end of its current license. In that proposal, PG&E committed to developing

a plan for expedited post-shut-down transfer of spent fuel to Dry Cask Storage as promptly as is technically feasible using the transfer schedules

¹⁵⁵ Ex. 18, pages 18, 21.

¹⁵⁶ Ex. 18, page 1, PG&E response to TURN DR5, Q16.

¹⁵⁷ Ex. 18, page 4.

¹⁵⁸ Ex. 18, page 7.

¹⁵⁹ Ex. 18, page 10.

¹⁶⁰ Ex. 18, page 13.

¹⁶¹ Ex. 18, page 16.

implemented at the San Onofre Nuclear Generating Station as a benchmark for comparison, and provided PG&E will also provide the plan to the CEC, collaborate with the CEC, and evaluate the CEC's comments and input;¹⁶²

When asked about this commitment during evidentiary hearings, PG&E witness Sharp admitted that the company was "in conversations with vendors" and acknowledged that "there is a chance for some reductions."¹⁶³ TLG witness Seymore was provided with the 10-year assumption by PG&E and did not review any of the new commitments included the Joint Proposal.¹⁶⁴ As a result, PG&E's commitment to benchmark Diablo Canyon fuel transfers to the 6-year timeline at SONGS was not incorporated into the current cost estimate.

In rebuttal testimony, PG&E argues that any reductions in the timeline for moving fuel to dry storage should be considered in the next NDCTP.¹⁶⁵ TURN disagrees. The Commission should make this adjustment to reflect changed circumstances since the NDCTP application was filed. Because of the significant impact of this assumption on the cost estimate, waiting until the next NDCTP to make this reduction in the timeline could prove meaningless for purposes of the revenue requirement collected from ratepayers. To the extent that funds are collected from ratepayers between 2017 and 2019 based on this assumption, which is then changed, the decommissioning trust funds may end up overfunded relative to assessed needs. Given the legal challenges associated with refunding excess trust balances to customers prior to the termination of the site license, excess funding tied to this assumption could be stranded for decades.

¹⁶² Ex. 18, page 24. (Joint Proposal submitted by PG&E in A.16-08-006)

¹⁶³ RT Vol. 1, pages 104-105.

¹⁶⁴ RT Vol. 1, page 39.

¹⁶⁵ Ex. 15, page 2-4.

Because PG&E has already committed to reducing the timeline for transfer of spent fuel to the ISFSI, the Commission should decline to approve the full 10-year assumption at this time. While TURN recommends the use of a 7-year timeline, consistent with the direction provided in D.14-12-082, the Commission could instead adopt a different duration of less than 10 years to protect ratepayer interests while PG&E implements its commitments to develop a plan for expediting the transfer of fuel to dry storage.

VII. SPENT NUCLEAR FUEL MANAGEMENT COSTS

PG&E proposes a 72% increase in Diablo Canyon spent fuel management costs from \$457 million (in the 2012 study) to \$785 million in the current study.¹⁶⁶ Compared to the amounts approved in the 2009 study (\$382 million), the costs in the current study have more than doubled and now represent 21% of the total decommissioning estimate.¹⁶⁷ PG&E proposes spent fuel management costs of \$137 million for HBPP.¹⁶⁸

Recent cost increases are directly related to delays in the expected date when the federal government will begin the pickup of spent fuel. The initial pickup date has changed from 2020 (2009 NDCTP) to 2024 (2012 NDCTP) and 2028 (current NDCTP).¹⁶⁹ The costs associated with these delays are the result of a breach of contract by the US Government and will be paid to PG&E through either settlement agreements or future litigation.

TURN therefore urges the Commission to make the following findings in this case:

¹⁶⁶ Ex. 33, page 28.

¹⁶⁷ Ex. 33, page 28, Figure V-1.

¹⁶⁸ Ex. 33, page 29.

¹⁶⁹ Ex. 33, page 28.

- Find that the federal government will honor its obligations to pay for incremental spent fuel management costs attributable to its breach of the standard contract.
- Adjust any ratepayer revenue requirements sought in 2017 to include only a portion of incremental spent fuel management costs that will be reimbursed by the federal government. To protect against any lingering uncertainty, TURN recommends including between 5-50% of such costs.
- Direct PG&E to survey the rate treatment provided by other state utility commissions for similar costs to be reimbursed by the federal government and submit a report in the next NDCTP. Alternatively, the Commission could authorize the creation of an independent panel, similar to the one authorized in D.10-07-047, to perform this work.
- Direct PG&E to provide a report, in the next NDCTP, explaining all issues relating to limitations on removing any excess funding from the nuclear decommissioning trusts prior to the termination of a site license.
- Direct PG&E to continue to report, in future NDCTPs, on collection of spent fuel management damages from the federal government and provide updates relating to the status of settlements and litigation claims. These updates should include a summary of developments across the nuclear industry and not be limited only to PG&E's direct experience.

TURN offers these recommendations for two key reasons. First, there is now a settled expectation that the US Government will pay the actual costs incurred by the utilities for onsite spent fuel storage. Second, the failure to consider these future damage payments violates principles of intergenerational equity by forcing current customers to make contributions towards costs that will

ultimately be reimbursed by the US Government. Future customers should not be the beneficiaries of these payments. The rationales for these findings and recommendations are explored in the following sections.

A. The US Government is liable for increased costs associated with the delay in spent fuel pickup

The Nuclear Waste Policy Act of 1982 authorized the US Department of Energy (DOE) to enter into contracts with nuclear power plant owners.¹⁷⁰ Under the Act, nuclear utilities paid fees to the federal government and DOE was obligated to pick up spent nuclear fuel no later than January 31, 1998. PG&E entered into the standard contract with US DOE and, after the federal government failed to perform on its obligations, filed two rounds of lawsuits to recover costs attributable to the breach.¹⁷¹ Both rounds of PG&E lawsuits were resolved through a settlement that provides for payment of past damages and establishes an administrative claims procedure to address future damage claims.¹⁷² The current settlement agreement is in effect for costs incurred through the end of 2016. Under the settlements, PG&E received \$266 million in payments for damages through 2010 and another \$71 million for damages between January 2011 and May 2014.¹⁷³ PG&E states that it expects to extend the current agreement and to receive future compensation from the US Government with shortfalls in the range of 2-6% relative to the face value of the claims filed.¹⁷⁴

PG&E's settlement is the result of a "long and arduous process of litigation" by the entire nuclear power industry that has conclusively established the

¹⁷⁰ 42 USC §10101-10270.

¹⁷¹ Ex. PG&E-14, page 10-1.

¹⁷² Ex. PG&E-14, pages 10-1 and 10-2.

¹⁷³ Ex. PG&E-14, page 10-3.

¹⁷⁴ Ex. PG&E-14, page 10-4; Ex. 32, page 1, PG&E response to TURN DR#5, Q11.

responsibility of the federal government to pay damages for its failure to perform.¹⁷⁵ To date, every litigation claim filed by utilities to enforce this obligation has been successful (either through court ruling or settlement) and there is no remaining ambiguity about the federal government's liability to perform on its contract obligation or pay damages. As explained in a 2010 Federal Claims Court decision awarding \$142.4 million to Southern California Edison, "liability on the part of DOE has been conclusively established – the U.S. Court of Appeals for the Federal Circuit has held that DOE breached the standard contract by failing to commence accepting SNF by January 31, 1998."¹⁷⁶

In the 2012 NDCTP, TURN raised similar arguments and asked the Commission to make adjustments to the cost estimates based on the likelihood of future damage payments. The Commission did not adopt TURN's primary proposal due to concerns that the proceeds of future litigation remain speculative in two respects. First, the Decision asserts that "funding for future DOE damage awards is still subject to future appropriations."¹⁷⁷ Second, the Decision finds that TURN had not provided sufficient support to "establish a substantial likelihood of recovery and amounts."¹⁷⁸

TURN raises this issue again to reflect changed conditions since the record closed in the 2012 NDCTP. Developments since that time make the proceeds of future litigation less speculative and far more certain. During that proceeding, the settlement process was new and many cases remained pending in the courts. Since the decision, every settlement agreement with nuclear plant owners has been extended and significant new information has been provided to affirm the federal government's expectation with respect to its long-term liabilities for

¹⁷⁵ Ex. 33, page 31.

¹⁷⁶ *Southern California Edison v. US*, 93 Fed Cl. 337 (2010), page 5.

¹⁷⁷ D.14-12-082, page 36.

¹⁷⁸ D.14-12-082, page 37.

breach of its contractual obligation.¹⁷⁹

Official reports and testimony by the federal government now reflect a certainty regarding future liabilities for spent fuel management. A 2014 report to Congress by the US Government Accountability Office (GAO) references a DOE estimate of \$21.4 billion in future federal liabilities through 2071 based on the assumption that spent fuel pickup begins in 2021 and no delays occur.¹⁸⁰ The GAO report notes that the Department of Justice “has settled as many of the cases brought by owners and generators of spent nuclear fuel as possible out of court to reduce the time and expense of litigation and to achieve some consistency in what the government should expect to pay in potential future claims.”¹⁸¹ The GAO further explains that the federal government’s liability is directly linked to expected delays in pickup of spent fuel and that “each time extension adds to the federal government’s liability.”¹⁸²

The US Department of Energy 2015 financial report similarly affirms the basis for the Commission to assume that PG&E’s future litigation claims will be reimbursed by the US Government. The DOE explains that

Lawsuits have been filed by utilities to recover damages resulting from the delay. The Department of Justice has entered into settlements. To date, approximately \$5.3 billion has been paid out of the Judgment Fund for settlements and judgments to contract holders. Contract holders will continue to submit annual claims for additional costs under the settlement agreements. Additional annual payments will be made pursuant to those agreements until the Government has fulfilled its spent fuel acceptance obligations.¹⁸³

¹⁷⁹ RT Vol. 2, page 202.

¹⁸⁰ Ex. 32, page 4.

¹⁸¹ Ex. 32, page 5.

¹⁸² Ex. 32, page 7.

¹⁸³ Ex. 32, page 11.

This assessment is consistent with the views presented by the Congressional Budget Office (CBO) in Congressional testimony in December of 2015. The CBO identified \$23.7 billion in future liabilities assuming that spent fuel pickup commences within 10 years. The CBO notes that “if the department’s schedule is further delayed, the anticipated costs – which will be borne by taxpayers through spending from the Department of the Treasury’s Judgment Fund – will climb.”¹⁸⁴

In the 2012 NDCTP, the Commission denied the relief sought by TURN, in part, based on the erroneous assumption that future Congressional appropriations would be necessary to pay damage awards to nuclear utilities.¹⁸⁵ Because the damage awards are made from the Department of the Treasury’s Judgment Fund, ongoing payments are not dependent upon future Congressional appropriations. Pursuant to Title 31 of the US Code (§1304), awards made from the Judgement Fund do not require separate Congressional appropriations because the Fund is a permanent, indefinite appropriation used to pay judgements and awards against the United States Government (including settlement entered into by the Department of Justice). As a result, there is no legitimate basis to conclude that future spent fuel damage payments face any risk associated with the need for future Congressional appropriations.

PG&E concedes that it did not take into account any US Government estimates of future liability for purposes of developing its position in this proceeding.¹⁸⁶ Furthermore, PG&E admits that it has performed no research or conducted any investigation into whether circumstances have changed for nuclear plant owners since the 2012 NDCTP.¹⁸⁷ PG&E also could not identify any prospective litigation

¹⁸⁴ Ex. 32, page 9.

¹⁸⁵ D.14-12-082, page 36.

¹⁸⁶ RT Vol. 2, pages 152-153.

¹⁸⁷ RT Vol. 2, page 165.

in the federal courts that could change the interpretation of the federal government's long-term liability to nuclear plant owners.¹⁸⁸

The Commission should give deference to the fact that the GAO, CBO and DOE all presume that the federal government's liability extends until spent fuel pickup is complete and that payments will be made "until the Government has fulfilled its spent fuel acceptance obligations."¹⁸⁹ Moreover, the Commission should take note of the fact that state utility commissions in Texas and Florida are now relying on expectations of future reimbursements from the federal government to fund decommissioning liabilities relating to spent nuclear fuel management.¹⁹⁰ TURN witness Lacy provided testimony and settlement agreements demonstrating that these Commissions now substantially rely upon future payments from the Judgment Fund to cover these future decommissioning costs.

TURN urges the Commission to incorporate this new information into its assessment of the certainty of recovery of damage claims by PG&E. As explained during hearings, there is a near-zero likelihood that the federal government will not pay reimburse California utilities for its nonperformance. While PG&E may suggest a scenario in which the federal government no longer pays damages (and fails to pickup spent fuel), TURN witness Lacy explained that such a scenario is not plausible and would require an assumption that the "U.S. justice system collapsed" given the substantial legal precedents and history that led to the current system of settlements.¹⁹¹ The Commission need not consider such a remote possibility for purposes of determining just and reasonable revenue

¹⁸⁸ Ex. 32, page 32.

¹⁸⁹ Ex. 32, page 11.

¹⁹⁰ Ex. 33, pages 33-34, 42-45, 46; Ex. 34, pages 31-71.

¹⁹¹ RT Vol. 2, page 240 ("This is not just one or two decisions. These are many decisions fought over by many utilities in many venues over many years. All of that culminated in the settlement process that we see today.")

requirements to be collected from PG&E customers in the current NDCTP cycle.

B. PG&E's proposed rate treatment for damage awards would guarantee significant intergenerational inequities

PG&E proposes to ignore future damage payments from the US Government for purposes of developing the decommissioning cost estimates and establishing the associated customer revenue requirements. Instead, PG&E would refund damage awards to its customers in the year they are received via the Annual Electric True-up Advice Letter.¹⁹²

PG&E asks the Commission to assume a delay in the completion of Diablo Canyon decommissioning from 2056 (in the prior estimate) to 2062 (in the current estimate) due to delays in spent fuel pickup by the DOE.¹⁹³ This delay causes an increase in the current cost estimate to account for incremental spent fuel management costs during the extended schedule. The increase in the cost estimate would be funded through higher customer rates between 2017 and 2024. The incremental costs caused by this delay would be reimbursed by the US Government after they have been incurred with an expectation that ratepayers would receive a rate credit during the 2060s.¹⁹⁴

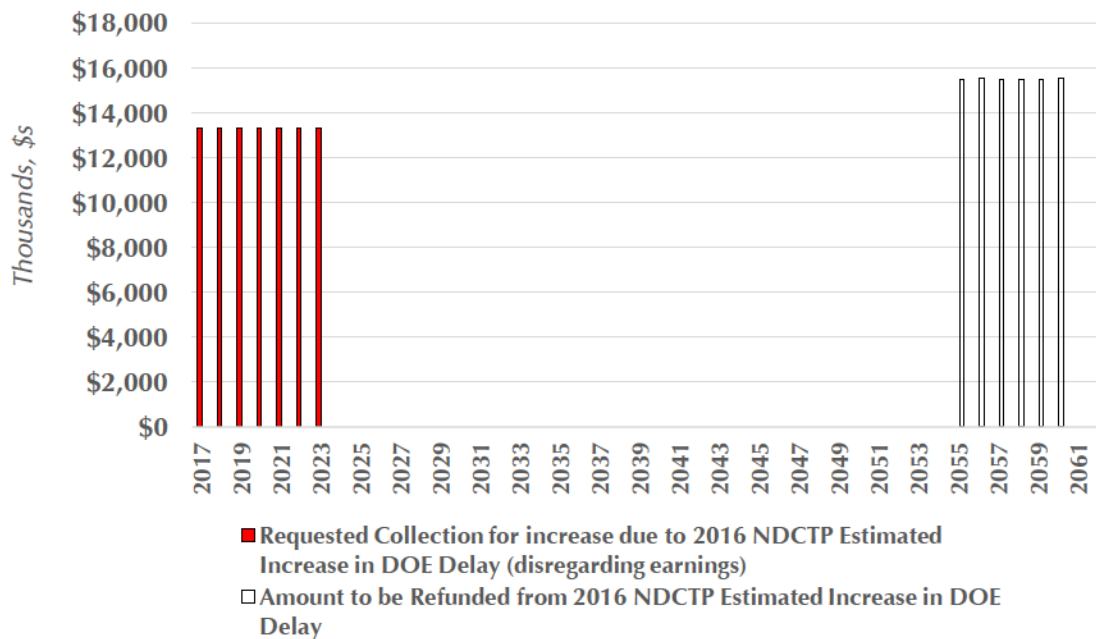
The arrangement proposed by PG&E fails to preserve intergenerational equity because it would require ratepayers in 2017 to make payments that will essentially be refunded 40 years later. Many of the customers making payments in 2017 will no longer be alive when the money is returned in the form of a rate credit. The following chart highlights the extreme temporal disconnect between payments and refunds under this arrangement.

¹⁹² Ex. 14, page 10-4.

¹⁹³ Ex. 32, pages 12-21.

¹⁹⁴ RT Vol. 2, page 160.

PG&E asks current customers to pay \$93 million through 2023 with reimbursement provided to future generations



The Commission has previously recognized that the preservation of intergeneration *equity* includes a commitment “to preventing intergenerational *inequities* whenever possible”¹⁹⁵ In the recent SONGS decommissioning case, the Commission also agreed that “known and quantifiable decommissioning cost reductions should be promptly incorporated into the Decommissioning Cost Estimate.”¹⁹⁶ PG&E’s approach does not satisfy these two principles because it amplifies intergenerational *inequity* and fails to account for known cost reductions.

TURN witness Lacy urged the Commission to consider the practical implications of not taking these future payments into account at this time, noting the

¹⁹⁵ D.14-12-082, page 36. [*emphasis added*]

¹⁹⁶ D.16-04-019, pages 19-20.

unfairness of collecting over \$90 million from customers in the next few years that “will be refundable 40 or 50 years from now.”¹⁹⁷ The Commission should take meaningful steps to avoid this *inequity*.

C. TURN’s Proposals for Treatment of Future Damage awards

In light of the considerations raised in the prior sections, TURN recommends an incremental approach to incorporating future spent fuel reimbursements by the federal government into the current cost estimate. In prepared testimony, TURN witness Lacy identified a number of options available to mitigate intergenerational inequity based on the level of confidence the Commission wishes to place on future payments by the federal government.

Specifically, TURN proposes that a portion of future spent fuel management costs that will ultimately be reimbursed by the US Government be excluded from the decommissioning revenue requirements collected from current ratepayers.¹⁹⁸ TURN witness Lacy identified three options:¹⁹⁹

- include 5% of future recoverable Spent Fuel Management costs when calculating revenue requirements to be collected from current customers.
- include 25% of future recoverable Spent Fuel Management costs when calculating revenue requirements to be collected from current customers.
- include 50% of future recoverable Spent Fuel Management costs when calculating revenue requirements to be collected from current customers.

¹⁹⁷ RT Vol. 2, page 201.

¹⁹⁸ RT Vol. 2, page 191.

¹⁹⁹ Ex. 33, page 35.

These options differ from the Commission's historical practice of allowing 100% of future recoverable Spent Fuel Management costs to be included in calculating revenue requirements to be collected from current customers with no adjustment to account for future reimbursements by the federal government.

Since the total amount of recoverable costs is estimated at \$922 million, any of the three options proposed by Mr. Lacy would provide significant near-term rate relief to customers.²⁰⁰ In addition to considering these offsets, the Commission could consider an alternative formulation where the revenue requirement offset would be tied to the incremental costs created by the extension of the decommissioning schedule attributable to new delays by the federal government in the pickup of spent fuel assumed in the current estimate. As shown in the prior chart, this would provide \$93 million in revenue requirement credits through 2024 that for costs to be incurred beginning in 2055 and collected from the federal government at that time.

The Texas and Florida utility commissions have adopted similar approaches to TURN's proposal. The Texas Commission has allowed 95% of the spent fuel management costs at the South Texas nuclear plant to be covered by future federal damage payments.²⁰¹ The Florida commission issued an order in June of 2016 permitting FPL to assume that spent nuclear fuel management costs through 2059 at Turkey Point and 2063 at St. Lucie are eligible for reimbursement from the federal government (and need not be collected from customers).²⁰² These actions by other state commissions demonstrate that there is a legitimate basis for adopting the relief proposed by TURN.

²⁰⁰ Ex. 33, pages 35-36.

²⁰¹ Ex. 33, page 44.

²⁰² Ex. 33, page 46.

Another advantage of TURN's proposal is a reduction in uncertainty regarding the amount of actual costs to be incurred for spent fuel management over an extended period of time. Although the decommissioning cost studies estimate these future costs, damage claims filed with the US Government will reflect costs actually incurred at each site until the fuel is successfully removed. To the extent that costs deviate from the estimates (possibly due to the timing of removal), ratepayers will be protected because actual costs will be recovered through damage awards. Matching awards with actual costs represents an improvement over the approach proposed by the utilities.

TURN strongly encourages the Commission to consider whether incremental steps in this direction are warranted at this time. Even a modest adjustment to reflect future awards would provide meaningful near-term rate relief to current customers. In a subsequent NDCTP, the Commission could increase the proportion of projected costs to be removed from the estimate as confidence increases based on additional years of experience with litigation and settlements.

D. TURN's proposals do not violate state law

In the 2012 NDCTP, PG&E unsuccessfully argued that TURN's proposals to account for federal damage awards would violate the CNFDA because the decommissioning trust funds are the only permissible source of funds that may be used to support any activity related to decommissioning, that the only contributions to these trust funds can be provided by ratepayers, and that all potential costs (even those outside the responsibility of the utility) must be included in the cost estimate for advance funding by ratepayers. Under PG&E's theory in the 2012 NDCTP, the Commission is prohibited from adjusting the cost estimate to exclude costs that are not the responsibility of the utility and may not allow revenues received from any other source to be deposited into the trust fund. The Commission did not endorse PG&E's legal argument in D.14-12-082.

To ensure that the Commission is not left with the false impression that this argument has merit (if PG&E raises these arguments again only in its reply brief), TURN offers a preemptive rejoinder. Under the California Nuclear Facility Decommissioning Act (CNFDA) of 1985, the Commission is charged with “minimizing the cost to electric customers of an acceptable level of assurance” and ensuring that customers “are treated equitably over time”.²⁰³ Absent the adjustments to the cost estimates proposed by TURN, current ratepayers would be required to bear significant financial burdens for the costs of the federal government’s breach that will be collected from the federal government shortly after they are actually incurred by the utilities.

Collecting the entire amount of costs caused by this breach in current decommissioning rates will only ensure that the trust funds have excessive balances, that current customers are overcharged, and that the interests of future generations will be favored over the interests of current customers. This outcome violates the intergenerational equity principle and is inconsistent with the purpose of the Act. These outcomes are neither reasonable nor required.

Costs attributable to the contractual breach are not reasonably understood to be the responsibility of either ratepayers or the utilities. The Federal Government is legally obligated to pay these additional costs. As a result, there is no reason for the Commission to require that 100% of the projected expenditures associated with the Federal Government breach be included in the cost estimates and assigned to today’s ratepayers. The CNFDA does not require that all expenditures related to the decommissioning process be paid via the externally managed, segregated master trusts. Pursuant to §8325(a) of the Public Utilities Code, the Commission “may establish other funds, as appropriate, for payment of decommissioning costs of nuclear facilities.” Pursuant to §8325(c), the

²⁰³ Cal. Pub. Util. Code §8322.

Commission is authorized to allow the utilities to “otherwise recover the revenue requirements of the nuclear facilities for purposes of making contributions into other funds established pursuant to subdivision (a).” These two subdivisions explicitly authorize the Commission to establish other mechanisms to pay for some decommissioning expenditures and permit entities other than ratepayers to contribute towards such costs.

In the event that PG&E (or either of the two other utilities) raises this claim, the Commission should reject the argument that the full extent of spent fuel management costs attributable to the federal government’s breach must be included in the current cost estimates and collected from today’s ratepayers. Given the fact that these costs are being collected from another entity, the Commission may either adjust the cost estimates to remove a portion of the costs that will be recovered from the federal government or adjust the revenue requirements to account for future reimbursements.

E. Additional recommendations to improve reporting and increase the quality of information available to the Commission in future proceedings

The Commission should direct PG&E to provide more comprehensive updates relating to spent fuel management claims against the federal government in future NDCTPs. Absent TURN’s participation in this proceeding, the Commission would have little information beyond a summary of historical claims filed by California utilities.

Despite being directed to provide updates on damage claims, settlements and awards related to spent nuclear fuel costs, PG&E’s presentation in this

proceeding was minimalist in nature.²⁰⁴ PG&E offered a witness on this subject who appears to have little involvement in the claims process or the litigation against the US Government. PG&E witness Maggard could not even name the individuals within PG&E tasked to work on this issue.²⁰⁵ Furthermore, PG&E claims to have no knowledge of, and do not monitor, efforts by other nuclear utilities to recover costs from the US Government for spent fuel storage.²⁰⁶

In order to aid the Commission's understanding of the status of spent fuel management damage claims, and to assist with determining the certainty of future awards, TURN witness Lacy made the following recommendations for the Commission to adopt in this proceeding:

- PG&E should be directed to provide a report on rate treatment of federal government settlement payments by other state utility commissions.²⁰⁷ Alternatively, the Commission could authorize the creation of an independent panel, similar to the one authorized in D.10-07-047, to perform this work and submit a report as part of the next NDCTP.
- PG&E should submit a report in its next NDCTP on all issues related to NRC or IRS jurisdiction that affect PG&E's ability to remove Spent Fuel Management money that has already been or will be contributed to the Nuclear Decommissioning Trust prior to its extinguishment.²⁰⁸
- PG&E should continue to report in the next NDCTP on its experience with collecting damages from the federal government and any industry-

²⁰⁴ D.14-12-082, page 36, Ordering Paragraph 12.

²⁰⁵ RT Vol. 2, page 149, Maggard.

²⁰⁶ RT Vol. 2, page 150; Ex. 32, pages 1-2.

²⁰⁷ Ex. 33, page 7.

²⁰⁸ Ex. 33, page 7.

wide developments that affect either the settlement process or litigation claims for damages.²⁰⁹

PG&E did not respond to any of these recommendations in its rebuttal testimony and did not cross examine Mr. Lacy on these proposals. TURN therefore urges the Commission to adopt measures to improve the quality of information on this topic. In future proceedings, the Commission should not be forced to rely exclusively on material presented by intervenors to assess the status of industry-wide claims against the US Government on an issue of critical importance to California ratepayers.

VIII. RECOMMENDATIONS FOR IDENTIFYING AND MINIMIZING SITE CONTAMINATION ISSUES

The experience at HBPP suggests that PG&E should be taking advance measures to identify, catalogue and minimize any site contamination at Diablo Canyon prior the shutdown of the facility. TURN witness Lacy offered two specific recommendations that should be adopted as part of a decision in this proceeding.

First, the Commission should direct PG&E to develop and submit a plan to aggressively characterize site contamination prior to shutdown and make efforts to reduce any onsite contamination during remaining operations.²¹⁰ PG&E's failure to take similar steps at HBPP contributed to significantly higher decommissioning costs, some of which could have been avoidable had more diligence been applied to pre-shutdown characterization of contamination. In rebuttal testimony, PG&E opposes this recommendation on the basis that

²⁰⁹ Ex. 33, page 7.

²¹⁰ Ex. 33, page 26.

existing NRC regulations are sufficient and “the site characterization and radiological conditions at Diablo Canyon are well understood.”²¹¹

PG&E’s resistance to additional data collection is at odds with prior direction from the Commission. In D.11-07-003, the Commission adopted a recommendation from the Independent Panel for utilities to “take advantage of opportunities to obtain site contamination or activation data, from ordinary monitoring or new testing done during plant modifications and maintenance activities.”²¹² PG&E does not appear to have implemented this recommendation in any manner that goes beyond basic NRC requirements.

Unanticipated contamination could drive up overall decommissioning costs and lead to schedule delays. PG&E should be taking all feasible steps to avoid this outcome. To the extent that PG&E wishes to avoid undertaking any additional site characterization and contamination reduction measures during the operational period, the Commission should clarify that the discovery of unexpected contamination after shutdown could have consequences for shareholders.

Second, the Commission should establish a clear baseline for costs at Diablo Canyon prior to the commencement of active decommissioning.²¹³ In the event that undiscovered contamination, or failures in site stewardship, unnecessarily drive up the costs of decommissioning, PG&E shareholders should be at risk for costs that should have been avoidable. This recommendation is not addressed in PG&E’s rebuttal testimony.

²¹¹ Ex. 15, page 2-4.

²¹² D.11-07-003, page 33.

²¹³ Ex. 33, page 26.

IX. RECOMMENDED IMPROVEMENTS FOR THE FORMAT AND PRESENTATION OF DECOMMISSIONING COST ESTIMATES

In the 2009 and 2012 NDCTPs, the Commission adopted a series of enhanced reporting requirements designed to improve the format and presentation of decommissioning cost estimates. Many of these requirements were proposed by TURN for the purpose of clarifying changes in input assumptions over time and allowing for more transparent comparisons of cost estimates between facilities. While PG&E has implemented some of these requirements, others have not been incorporated into the showing contained in their current application.

In the 2009 NDCTP, the Commission adopted recommendations from the Independent Panel including a requirement that the utilities agree on a common summary format to present key information, assumptions and results that can be used to compare nuclear decommissioning cost estimates for different facilities.²¹⁴ A key objective of this format was to improve the comparability of cost estimates between facilities.²¹⁵ In the 2012 NDCTP, the Commission noted that the use of the Common Summary Format was particularly useful “for bridging the gap between the two different estimating formats used by PG&E and Edison.”²¹⁶

In this proceeding, PG&E did submit a common summary format for Diablo Canyon.²¹⁷ However, PG&E’s showing did not compare key information from the cost estimate for Diablo Canyon with similar assumptions made for the decommissioning of the San Onofre Nuclear Generating Station (SONGS). This

²¹⁴ D.11-07-003, page 35.

²¹⁵ D.11-07-003, Finding of Fact #13 (“The Panel’s recommendations set forth in Section 5 will improve the accuracy, transparency, and comparability of the decommissioning cost estimates submitted to the Commission.”)

²¹⁶ D.14-12-082, page 108.

²¹⁷ PG&E Application, Exhibit A.

omission represents a step backwards relative to the 2012 NDCTP showing when all three utilities (PG&E, SCE and SDG&E) provided a comprehensive comparison of the cost estimates from different facilities. That comparison allowed the Commission to review differences and similarities in key assumptions and inputs. The absence of a similar comparison format in this case handicaps the ability of intervenors and the Commission to compare the estimates between facilities and limits the usefulness of the common summary format.

In the 2012 NDCTP, TURN also recommended that the Common Summary Format be enhanced to include additional assumptions relating to the use of off-site waste processors, the import of clean fill, the treatment of onsite materials as contaminated, the number of years fuel remains in wet storage, and reliance on a “rip and ship” strategy for structures with some contamination. Many of these differences drive the disparity in costs or waste volumes and should therefore be disclosed. The Commission agreed with TURN that additional information should be included and directed the utilities to develop a revised Common Summary Format.²¹⁸ Despite this requirement, PG&E’s Common Summary Format does not reference any of these new requirements (and instead refers to the requirements adopted in the prior Decision) and does not appear to include all the additional information proposed by TURN.

TURN recommends that the Commission require each utility to provide a comparison between different California nuclear units in the common summary format in all future applications where the cost estimates are updated. At a minimum, the comparison should include Diablo Canyon, HBPP and SONGS. TURN would also appreciate including key input data and assumptions for Palo Verde (partially owned by SCE) in any future comparisons.

²¹⁸ D.14-12-082, pages 41-42.

In the 2012 NDCTP, the Commission also adopted TURN's recommendation that each future cost estimate include a comparison between the current DCE and the estimates from the two previous NDCTPs.²¹⁹ Despite this requirement, PG&E did not include a comparison of its current DCE to the 2009 estimate approved by the Commission. The Commission should reiterate this requirement for the next NDCTP and ensure that PG&E does not ignore it.

The combined effect of these two omissions in this proceeding was significant. Because there was no comparison of key assumptions at Diablo Canyon and SONGS in a common summary format, it is extremely difficult for intervenors and the Commission to assess divergences and similarities between these two estimates. Moreover, the lack of 2009 comparison data means that such information is only available to the extent obtained through time consuming discovery and cross-examination. There is no good reason why PG&E chose not to comply with (or even mention) these two requirements. The Commission should ensure that these and other reporting obligations are taken seriously by each of the utilities and enforced in all future proceedings.

X. CONCLUSION

For the reasons described in the foregoing sections, TURN urges the Commission to adopt the findings and recommendations identified in this brief.

²¹⁹ D.14-12-082, pages 41-42.

Respectfully submitted,

MATTHEW FREEDMAN

_____/S/_____
Attorney for
The Utility Reform Network
785 Market Street, 14th floor
San Francisco, CA 94104
Phone: 415-929-8876 x304
matthew@turn.org

Dated: October 14, 2016